

NEW COMPENSATION SYSTEMS AND MECHANISMS IN THE OIL AND GAS INDUSTRY IN NIGERIA







RESEARCH TEAM

The research on 'New Compensation Rates and Processes in Nigeria' was initiated and facilitated by the Stakeholder Democracy Network (SDN) with funding from the Dutch Ministry. The research team gratefully acknowledges this support and is convinced that focussed action research of this nature is a catalyst to meaningful change and a more sustainable oil and gas industry in Nigeria.

RESEARCH TEAM

LEAD RESEARCHER

Dr (Mrs) Iyenemi Ibimina Kakulu, ANIVS¹, RSV
(Associate Professor of Land Management and Valuation)
BTech. Estate Management (RSUST); MSc Urban Land Appraisal (Reading);
PhD Real Estate and Planning (Reading)

RESEARCH TEAM MEMBERS

Mr Utchay Augustine Okorji, ANIVS, RSV
BTech. Estate Management (RSUST); MSc Real Estate (Reading)

Mr Francis Mumeya, ANIVS, RSV
BTech. Estate Management (RSUST)

Mr Sheriff Eugene Izebe
ND. Estate Management, Auchi Poly, BTech Estate Management (RSUST)

Mr Tamunosiki Nyanabo Wokoma
BTech. Estate Management (RSUST)

EXECUTIVE REPORT

The current compensation assessment and payment mechanism in the oil and gas industry in Nigeria is largely dominated by civil courts and compensation payments are increasingly being obtained through litigation and negotiation in preference to valuation. Ideally, compensation can be obtained through a systematic professional and technical assessment of the immediate and long-term impacts of pollution on land, property and environmental resources. In terms of the quantum of compensation, there is often a wide disparity in value estimates which can differ significantly from one plot to another in similar locations. This is a reflection of the apparent lack of standardization in this process in Nigeria which is further complicated by interplay of different and often conflicting legislation on the subject of compensation embedded in different enabling laws. In her desire to contribute to the transformation process in the current inefficient and often counterproductive oil spill management and compensation system in Nigeria, the Stakeholder Democracy Network (SDN) with funding from the Dutch Ministry, facilitated a research on 'New Compensation Rates and Processes in Nigeria'. An expert team of researchers and Valuers undertook the study to identify a fair and comprehensive 'oil spill rates mechanism' that captures the immediate and future loss of earnings due to oil spills which are presented in this report.

METHODOLOGY

A case-study and grounded theory research strategy was adopted. The study team undertook a critical review of the existing laws and regulations on damage assessment and compensation operational within different sectors of the oil and gas industry and discovered several gaps and lapses. A comparative analysis was done of existing compensation rates currently in use in Nigeria. The findings of the study reveal that Nigeria lacks a distinct compensation code which specifies the processes and methods that are to be applied in compensation assessment and payment arising under different circumstances. The processes to be followed and methods to be used can be compiled into a single readily accessible document in the form of a compensation code as obtains in some countries such as the United Kingdom², is lacking. What exists in Nigeria, is a plethora of separate and often conflicting enactments regulating the practice in different sectors and which is often subject to multiple interpretation. The findings also reveal that the traditional and rather primitive practice of crop enumeration (numerical counting) and the use of historical predetermined rates as a multiplier to get a compensation value, is not only professionally incorrect but lacks any scientific capacity to deal with the impact of oil pollution on the immediate, medium-term and long-term impact on land and environmental resources. The use of historical or predetermined rates such as the 1997 OPTS³ Rates, the 1998 DPR⁴ Rates, the rates operational at the State level or the most recent 2008 NTDF⁵ compiled Rates to value contaminated land or marine resources, is not consistent with the principles of valuation or international valuation standards and should be discontinued and replaced with actual valuation as at the date of loss. The compensation assessment process requires a thorough scientific and technical approach to uncover the full impact of the spill on property and all other media prior to ascribing monetary or other values to the loss through valuation.

RECOMMENDATIONS

The value or worth of landed property assets is not retrospective and should be determined as at the date of loss and projected into the future to determine and capture future losses. Within the context of statutory valuation, the team recommends that a new procedure for compensation should as a minimum be distinct and separate from the provisions in the Land Use Act, an Act designed primarily for use in cases involving compulsory acquisition and not damage assessment due to oil and gas related pollution. The underlying issues in each case present different scenarios and should be separated. A total paradigm shift from the traditional, unscientific and rather primitive practice of crop enumeration (manual counting and multiplication) is required and the fundamental principles of valuation-of-loss strictly adhered to.

A new compensation system, mechanism or process if put in place, should as a minimum address the following issues in a clear, concise and unambiguous manner

1. Once a spill has occurred, the appropriate authorities led by NOSDRA⁶, should establish the source and cause of spill, nature of pollutant and assign liability.
2. The appropriate authorities should assess the magnitude/scale of the spill in terms of its spatial impact and volume, and not only the recorded barrels of crude spilled.
3. The spatial impact should include the physical area which covers the source, pathway and receptor communities, as well as its depth of impact.
4. The process should include an immediate post impact environmental assessment (PIEA) study which will lead to clean-up, compensation and remediation.
5. The new process should incorporate a post impact socio-economic survey (PISS) that will lead to compensation for other artisanal industries that will be affected by the spill ultimately.
6. The process should ensure that the valuation professional is engaged on all matters of valuation of landed property as specified in the Estate Surveyors and Valuers Registration Act, on behalf of both the claimants and the Polluter.
7. The New process should ensure transparency in the identification of genuine claimants and ensure that prompt payment of adequate compensation is made.
8. It should also ensure that both parties have access to courts of law to seek redress or other compensation tribunal as provided for in the Nigerian Constitution and other enactments.

In the absence of a distinct regulatory compensation code for use in the Nigerian oil industry, there is the need for intensified and harmonized sectorial effort from different stakeholders, Ministries, Departments and Agencies (MDA's) to ensure that their regulations and activities conform to international best practices in the area of compensation assessment, valuation and payment of compensation. Understandably, this might involve the amendment of existing legislation or enactment of new legislation, regulations or policies for this purpose. In so doing, the gaps and weaknesses of the current system might be addressed. Standardization is urgently required in order to reduce or avoid widely differing financial compensation for similar incidents by different courts (SDN, 2013).

INTRODUCTION

Valuation for compensation is generally classified as statutory valuation because the bases for valuation is determined by a statutory process through various enactments, policies and regulations, rather than through independent professional processes. In situations where at the time of drafting laws, regulations or policies, insufficient consideration was given to multiple valuation scenarios, gaps might exist in the design, and the process of change could take several decades as is the experience in Nigeria. The current system for assessing compensation that is widely in use in practice is the use of 'Rates'. This method has its origin in professional Mass Appraisal techniques which represent a systematic way of valuing groups of property as of a given valuation date using a common or standardized repetitive approach. Unfortunately, its application in Nigeria is not based on rates that have originally been derived from recent valuation but the use of historical rates which in most cases date back several decades, without review.

The value of landed property for investment or agricultural purposes is a function of several variables, economic factors, legal issues, physical and locational factors as well as social considerations determine value. Reliable and recent transactions on land are a prerequisite to valuation and not historical data alone because valuation depends largely on the collection and analysis of current and relevant data in order to make a statement or express an opinion of value. However, owing to the difficulty in assembling data, sometimes, mass appraisal techniques may be adopted provided they conform to professional valuation principles and methods.

Economic valuation of environmental losses and property valuation of the impaired value of property following oil pollution, are both essential in determining the full value of loss to both individual property owners and ecosystem losses to the wider society occasioned by the damage. Statutory valuation must be seen to operate within the confines of its enabling statute under any given circumstance and this is examined in subsequent sections of this report.

STATUTORY VALUATION PROCESSES IN NIGERIA

Valuation for damage forms part of the broad area of valuation practice known as statutory valuation which implies that its assessment methods are stipulated by law and executed within the specific legal framework on which it derives its Bases. Statutory valuation is designed to address a particular problem scenario and that scenario alone. It should as much as possible be clear, unambiguous and comprehensible to the lay man. One of the characteristics of statutory valuation includes the fact that the assessment methods and procedures are context-specific within a particular problem scenario and may therefore not be applicable or transferable under other circumstances as this could lead to dissatisfaction, conflict and litigation. The laws, regulations, policies and predominant practice methods in connection with valuation for compensation in instances of damage due to oil spills in Nigeria derives its use of 'Rates' from the practice associated with compulsory acquisition and the activities of the Chief Lands Officers at the Federal Level and the Directors of Lands at the State Government level within different states of the federation.

Valuation for damage involves not only an application of valuation principles or 'best practice' methods but an understanding of the interplay of various legislation, regulations policies and more importantly environmental issues. In the wake of environmental awareness in Nigeria following the Koko incident⁷ of 1989 which led to the with the promulgation of the Federal Environmental Protection Agency Act (FEPA) in 1992, the continued reliance alone on some the provisions of the Land Use Act of 1978 in the assessment of oil pollution related compensation is not sustainable. An Act which was promulgated 14 years ahead of the 1992 FEPA Act and could not have foreseen the challenges of pollution and damage in its composition neither could several of the other Acts, have envisaged this. However, in Nigeria, the principal legislation on compensation to which other legislations make reference to, or are dependent upon, is the 1978 Land Use Act, now Cap L5 LFN 2004. The Land Use Act focuses primarily on compulsory acquisition of Land and provides for compensation in that regard. It predates the inception of environmental awareness and consequent action by the Nigerian government which led to the establishment of various MDAs and regulatory bodies within the last three decades. The Land Use Act in its context and content does not capture the challenges of environmental pollution neither does it provide for scientific and robust methods of assessment where pollution and damage are involved. Clearly, there is a lot of confusion in the assessment of compensation in instances of compulsory acquisition/compulsory purchase and that of compensation assessment for damage caused by oil spills. The subject for the purpose of this study has been approached as two different subjects because of the technicalities involved in each. Sadly, the current practice attempts to treat both scenarios within the dictates of the Land Use Act and this confusion expresses itself in litigation.

Nigeria currently has no mechanism to standardize compensation, not due to lack of technical knowhow on the part of compensation professionals but largely due to incomplete, insufficient or simply non-existent statute. Generally, professional associations within the practice of Estate Surveying and valuation are able to cope with changing demands in the real world practice environment and respond accordingly. Unfortunately, the constraints associated with statutory valuation are such that Valuers cannot change what is stipulated in the law ahead of a change in the law itself or an amendment to the troublesome clauses that are contained therein. Change can only begin and be meaningful if and when laws are reviewed. In order to formulate an appropriate valuation method for damages, the study examined to fully understand the statutory provisions for compensation and how each statute addresses issues of damage, liability, heads-of-claim, and recommended valuation assessment methods. It also examined factors responsible for the confusion in the compensation valuation system by reviewing some of the laws controlling the process and identifying gaps.

The framework within which valuation for compensation occurs in Nigeria may be found in various enactments. The study reviewed the stipulated methods of assessment as provided for in several related legislation that are operational in damage related compensation and these are discussed below.

THE NIGERIAN CONSTITUTION

The Nigerian Constitution recognizes any general law which permits any authority or person to enter, survey or dig any land, or to lay, install or erect poles, cables, wires, pipes, or other conductors or structures on any land, in order to provide or maintain the supply or distribution of energy, fuel, water, sewage, telecommunication services or other public facilities or public utilities subject to prompt payment of compensation for damage to buildings, economic trees or crops. The constitutional position is quite clear on compensation as a result of damage but limits the heads-of-claim to buildings, economic trees and crops. The environment is not considered.

THE LAND USE ACT, CAP L5, LFN 2004

The Land Use Act, Cap L5, LFN 2004, deals with compensation assessment in instances of compulsory acquisition and is not designed to deal with damage assessment due to oil spills. Section 29 of this Act indicates that it lacks jurisdiction to deal with any form of compensation whatsoever where activities in the Petroleum industry or in the minerals and mining industry are concerned. It refers that all such compensation assessments are to be made according to the provisions of their respective Acts. The Land Use Act was promulgated in 1978 in response to post-civil war development constraints in Nigeria and the need to have quick access to land for development. The focus was on compensation assessment in compulsory acquisition and not compensation for damage due to oil spills or land contamination scenarios. No value is prescribed for bare land within the Land Use Act as it assumes that bare agricultural land has NO value. It however provides for the assessment of compensation for an amount equal to the rent, if any, paid by the occupier during the year in which the right of occupancy was revoked. The actual land owner gets no compensation for land but only for his activities on the land. For buildings, the LUA recommends the use of the replacement costs method to determine the cost of rebuilding installations or improvements on the land at the time of acquisition. The Basis of assessment in this case is the prescribed method of assessment as determined by the 'appropriate officer' less any depreciation. The appropriate officer is the Director of Lands at the State Level, and the Chief Lands Officer at the Federal Level. The LUA also provides for compensation of crops, and states that the assessment should be for an amount equal to the value prescribed and determine by the appropriate officer". The Act makes room for flexibility and the 'appropriate officer' is, in a majority of States, a member of the Nigerian Institution of Estate Surveyors and Valuers, and is abreast with professional practice valuation for compensation methods. The appropriate officer is somewhat limited however since statutory valuation is entrenched in its enabling laws. Reforms take very long to achieve. The prescribed method of assessment by the 'Appropriate Officer' is what has over the years culminated into the widely practiced mass appraisal technique in the use of multiplier unit rates per stand of crop or per hectare. Such rates are spread across different States of the federation.

THE PETROLEUM ACT P10, LFN 2004

The Petroleum Act, Cap P10 LFN, 2004 provides for the holder of an oil exploration license, oil prospecting license, or oil mining lease, to be liable to pay 'fair and adequate' compensation for the disturbance of surface rights to any person who owns or is in lawful occupation of the licensed or leased lands. It also provides that if the licensee or lessee cuts down or takes any other productive tree (a tree having commercial value which is not a protected tree) he shall pay fair and adequate compensation to the owner. The key words introduced by the Act are 'commercial value'. Section 21 (2) of the Petroleum (Drilling and Production) Regulations of the Act stipulates that if the licensee or lessee cuts down or takes any other productive tree, he shall pay fair and adequate compensation to the owner thereof. The basis of assessment of such productive tree is on the basis of the 'commercial value' of the tree. Section 23 of the regulations provides that if the licensee or lessee exercises the rights conferred by his licence or lease in such a manner as unreasonably to interfere with the exercise of any fishing rights, he shall pay adequate compensation therefore to any person injured by the exercise of those first-mentioned rights. Section 37 of the regulations provides for the licensee to take all steps practicable to cause as little damage as possible to the surface of the relevant area and to the trees, crops, buildings, structures and other property thereon. It makes no provision for compensation where this provision is violated and as such no provision for damage assessment or claims. In Section 37 of the First Schedule to the Act, the holder of an oil exploration licence, oil prospecting licence or oil mining lease shall, in addition to any liability for compensation to which he may be subject under any other provision of this Act, be liable to pay fair and adequate compensation for the disturbance of surface or other rights to any person who owns or is in lawful occupation of the licensed or leased lands. The method of assessment is not specified other than that the value of the productive tree should be the 'commercial value'. The commercial value of a tree can be either its value as a fruit bearing tree, its value in terms of soft wood or its value in terms of hard wood. Its environmental value as a carbon sink is not regarded in any of the laws and this is a common loss should pollution occur. The question regarding who should be compensated for a public good such as air pollution will have to be decided amongst other ecosystem services so destroyed.

THE OIL PIPELINES ACT CAP 07, LFN 2004

The Oil Pipelines Act Cap 07, LFN 2004, in Section 6(3) provides for permit-to-survey holders, to take all reasonable steps to avoid unnecessary damage to any land entered upon and any buildings, crops or profitable trees thereon, and to pay compensation to the owners or occupiers for any damage done under such authority and not made good. It however provides for compensation to be paid to any person suffering damage by reason of any neglect on the part of an oil pipeline licence holder or his agents, servants or workmen to protect, maintain or repair any structure or thing executed under the licence and for compensation to be made to any person suffering damage (other than on account of his own default or on account of the malicious act of a third person) as a consequence of any breakage of or leakage from the pipeline or an ancillary installation not otherwise made good. Section 6(3) of the Act provides for permit holders to take all reasonable steps to avoid unnecessary damage to any land entered upon and any buildings, crops or profitable trees thereon, and to pay compensation to the owners or occupiers for any damage done under such authority and not made good. Section 20(2) recommends just compensation and outlines the heads-of-claim for compensation as a result of damage to include:

1. Any damage done to any buildings, crops or profitable trees;
2. Disturbance caused by the holder in the exercise of such rights,
3. Damage suffered by any person (other than on account of his own default or on account of the malicious act of a third person) as a consequence of any breakage of or leakage from the pipeline or an ancillary installation;
4. Loss (if any) in value of the land or interests in land;
5. Injurious affection

It provides for compensation assessment to be done according to the provisions of the Land Use Act so far as they are applicable and not in conflict with anything in the Oil Pipelines Act. The Land Use Act addresses compensation for Land Acquisition and not damage. It also absolves itself from any dealings with land acquisition for the petroleum industry or minerals and mining sector of the economy. In section 29 subsection (2) of the Land Use Act, it provides that if a right of occupancy is revoked for the requirement of the land for mining purposes or oil pipelines or for any purpose connected therewith the holder and the occupier shall be entitled to compensation under the appropriate provisions of the Minerals and Mining Act or the Petroleum Act or any legislation replacing the same. This is the crux of the oil spill compensation regime in Nigeria, not lack of standards alone but lack of an enabling statute on which the standards can then be developed and adhered to. The caveat 'so far as they are applicable' makes it possible to use some of the provisions of the LUA in compensation valuation assessment.

THE NIGERIAN MINERALS AND MINING ACT, 2007

The NNPC Act, provides for the payment of compensation in respect of any loss or damage that may have been suffered in consequence of the operation of the provisions of the Act. It does not provide any specific information on what the heads-of-claim should be and is quite vague. The compensation characteristics, or the basis and method of valuation to be adopted are not specified. The NNPC Act recommends that the amount of compensation should be as prescribed under Land Use Act. The land Use Act as indicated earlier is an Act that was designed primarily to facilitate compensation in instances of compulsory acquisition for overriding public interest and not damage assessment. From the position of the Land Use Act stated earlier, it distances itself from any dealings on matters in the Petroleum industry which means that the NNPC Act has no clearly defined basis for valuation or any specified method.

With these conflicting positions in different Acts, a unifying document in the form of a distinct code is necessary. At present, neither the claimant nor the polluter can be held accountable for over-demanding or underpaying since there is no clearly defined modus-operandi in the valuation-for- compensation process in the oil industry in Nigeria. More importantly, issues of pollution span far beyond the normal land acquisition challenges as both environmental media and ecosystems are concerned. This expands the sphere of influence to include other regulatory agencies such as the Ministry of Environment, National Oil Spill Detection and Response Agency (NOSDRA) and the National Environmental Standards and Regulatory Agency (NESREA). A fresh start must be made to get it right and ensure that all media are adequately provided for in a new compensation regime. It is on this premise that the team has considered the use of illustrative case studies to reveal the lapses in the current system. A summary of the contents of different enabling statutes with regards to damage assessment and compensation in Nigeria can provide a guide to the development of a new compensation code in so far as the following issues are incorporated.

1. Prompt payment of compensation for damage.
2. Compensation should be assessed based on the prescribed method of assessment as documented by the "Appropriate Officer".
3. Compensation should be fair and adequate.
4. Compensation should be paid for disturbance of surface rights.
5. Compensation shall include the commercial value of a productive tree.
6. Compensation shall be paid to owners or occupiers.
7. Compensation shall be made for damage not made good.
8. Compensation shall be just.

The other general principles of compensation such as the principles of equivalence; equity or completeness are not mentioned in any of the Acts and should be incorporated in a new regime.

PRINCIPLES OF VALUATION OF IMPAIRED PROPERTY

DETERMINING AN 'APPROPRIATE METHOD'

Determining an 'appropriate method' of valuation for damage and the feasibility of adopting systematic, established procedures and standardized methods, can only succeed where the statutory valuation regulatory framework adequately captures the right principles and methods of valuation in its construction. The factors responsible for lack of standards in the process, run along a continuum from incomplete laws and regulations to non-existent laws altogether. There is not one method which could be described as an 'appropriate method' of valuation for damage to crops, economic trees, landed property, mangrove and other ecosystems because there are a multiplicity of damage types each requiring proper understanding and a dedicated professional, scientific and technical approach to its valuation. Valuation for damage in oil related pollution should as a minimum expect to cover economic valuation of environmental losses due to damage to the environment, and valuation to determine the impaired value of property (including buildings, crops and economic trees) for remediation and compensation. These separate issues each require dedicated methods of approach and this report focuses primarily on damage to agricultural property.

INTERNATIONAL VALUATION STANDARDS COMMITTEE (IVSC)

The International Valuation Standards Committee (IVSC), guidance notes on the valuation of agricultural properties, recognizes the value of agricultural lands and sets out the basis of valuation of agricultural properties. The recommended approach to adopt in valuing agricultural property is based on an estimation of cash flow projections. The importance of this position to the study in Nigeria is the lack of recognition of farmland as an investment of time and labour by the users of such land in anticipation of future financial rewards, in recommended damage assessment methods. Also in a situation where the predominant farming methods include farming rotation and bush fallow is a major component of this process. As such, unused land to a farmer is not idle as it might be recuperating for the next farming season. Although the IVSC Red Book does not recommend any specific methods for use within the context of contaminated land valuation, it is safe to assume that the methodology is suitable as long as the extent to which the contamination influences the cash flow pattern can be captured in the valuation exercise.

CONTAMINATED LAND VALUATION APPROACH

There are several other authors who have discussed the valuation of contaminated land from different perspectives and made their recommendations.

1. Dixon (1995) and Richards (1996) suggest that the traditional investment valuation methods should serve as the framework for use in the valuation of contaminated land which involves the assessment of the direct costs; indirect costs; and property factors affected by the contamination.
2. Patchin (1994), suggests a comparable sales approach which reviews recent sales transactions on similar land in control not polluted areas, and measures the losses resulting from contamination through the analysis of market data on contaminated properties.
3. Compensation can also be based on an estimate of the cost of remediation and all activities necessary to restore the land to an acceptable standard.
4. Syms (1996) discusses the 'risk assessment' approach by calculating and determining the unimpaired value of a property and deducting from it all discounted costs of remediation and arriving at the impaired value.
5. The income capitalization method is also a recommended method for use in the valuation of contaminated land. According to Bond et al. (2001), whatever method that is adopted in valuation of contaminated land, some variant of income capitalization analysis is necessary to measure the deductions from unimpaired market value that are appropriate and necessary to estimate market value "as is" of contaminated land.
6. The cost to restore the land to an acceptable standard and making it suitable for use is suggested by Dixon and Richards (2003) who recommend a valuation methodology which focuses on capturing as much detail as possible, on the assessment of all the likely costs associated with making the land suitable for use within an investment framework. Richards (1996) also recommends a cost-to-correct approach incorporated within a discounted cash flow framework can be used to value different types of property with different types of contamination.
7. Economic valuation of environmental losses and property valuation of the impaired value of property following oil pollution, are both essential in determining the full value of loss to both individual property owners and ecosystem losses to the wider society occasioned by the damage. However, statutory valuation must be seen to operate within the statutory confines of its enabling statute in under any given circumstance.
8. The International Federation of Surveyors (FIG) and the Food and Agricultural Organisation of the United Nations (FAO), have in several instances sponsored studies⁸ in search of suitable compensation assessment mechanisms. To the professional Valuer, the general agreement is that the principles of valuation irrespective of where they are applied must remain unchanged.

RESEARCH METHODOLOGY

The main objective of this study was to research and draft a new oil spill compensation rates mechanism and processes in Nigeria, to facilitate further advocacy and promotion. An Illustrative Case Study and grounded theory approach was adopted in order to show the level of disparity in values operating within the Nigerian compensation system and what is obtainable using the normal professional valuation methods. The methodology was chosen to understand how really inadequate the existing rates are when compared to International best practices in the valuation of agricultural land and produce. The results are grounded in the data that was analysed.

The methodology involved the following activities:

1. A comprehensive review of different statutory enactments on damage assessment and compensation was done by examining the enabling Acts discussed in earlier sections of this report.
2. A comparative review was done on the different Rates used in the six geo-political zones in Nigeria.
3. A comparative analysis was performed on the Rates, in the different grades of maturity, in the six geo-political zones.
4. The 2008 NTDF rates were compared with the 1998 DPR rates to discover similar trends or patterns in them for standardization.
5. The OPTS9 rates were not analysed as it lacks jurisdiction within the interpretation of statutory valuation for compensation in the oil and gas industry in Nigeria.

The purpose of this comparative review was to establish a case for comparison with actual valuation done according to professional principles with the use of public data on yields crop obtained from FAOSTAT and World Bank data on Nigeria.

SELECTION OF CASE STUDY SITES

Oil and Gas exploration and production activities take place within the Niger Delta where spills are more likely to occur either as operational spills, accidental spills, spills caused by illegal bunkering or acts of sabotage. To undertake the study, three sites were chosen from three Niger Delta states, namely Rivers State, Bayelsa State and Akwa Ibom State. The selection of specific locations to visit in each state was influenced by the presence of active farming communities where interaction was held with farmers. The sites chosen were not specifically within oil producing communities as the focus was on farmland in either control or polluted areas in each location. The interaction with farmers was to ascertain first hand, the predominant crops and economic trees grown in the areas and thereafter use this information as a basis for creating hypothetical valuation scenarios. The visit and interaction was also necessary to provide the research team with a better understanding of the farming practices such as the land rental pattern, crop rotation and mixed cropping practices, which was incorporated into the analysis.

SELECTION OF CROP TYPES AND ECONOMIC TREES

A total of 7 economic tree types and 7 predominant economic/cash crops were used in this illustrative case study. The selection of crop types and economic trees used was done using a combination of parameters. The selection of each crop was done following the outcome of field visits and the observation of some of the most widely grown crops within the Niger Delta. Considering also that the rates being considered apply to crops, economic trees and mangrove resources, the type of land chosen was mainly farmland where subsistence farming is practiced and mangroves where shellfish is harvesting is practiced. The predominant Crop types chosen for the study are shown in Table 1 right.

SELECTION OF CASE STUDY SITES

ECONOMIC TREES (ET)	CASH CROPS (CC)
BANANA	PEPPER
PLANTAIN	CASSAVA
PALM FRUIT	YAM
COCONUT	GROUNDNUT
ORANGE	COCOYAM
RAFFIA PALM	SWEET POTATO
MANGO	MAIZE (CORN)

ANALYSIS OF EXISTING COMPENSATION RATES IN NIGERIA

The history of 'Rates' dates back several years and has been used extensively in Nigeria for compensation assessment in compulsory acquisition as well as in oil spill damage assessment and compensation. This age old practice however is fraught with several challenges and its continued reliance upon as the only method for compensation assessment is questionable in the light of recent research and discussions on this subject, (Kakulu 2008, Akujuru and Ruddolf, 2014). The study team recognizes the fact that the process of change can be more rapid where there is in-depth analysis of the pros and cons of an existing widely practiced method and using these findings as a basis for a paradigm shift. It also recognizes that the process of formulating an appropriate method of valuation for damage is a complex process as several factors, interests and disciplines need to be considered. The use of 'rates' in valuation for compensation in Nigeria deals very casually with a very technical and complicated subject such as contamination. Clearly, contamination is very complex in terms of the specific contaminant involved and the corresponding effects it has on land as distinct from land use. Land which is used for agricultural purposes may suffer severe setbacks compared with land used for other purposes, where contamination is concerned. Kennedy (2000), suggests that there is the need for more quantitative approaches to the calculations in contaminated land valuation and that a more analytical and quantitatively sophisticated approach to valuation should be adopted. In agreement with this position and using the position of several authors on this subject, we believe that there is the need for a more sophisticated and scientific approach to the determination of rates for use in this type of valuation.

The method focuses on crops, economic trees, and improvements on land in the form of buildings, hunting traps or shrines. It also includes mangrove resources and pre-determined unit rates per area are developed and applied. Compensation rates are applied to agricultural products in two main categories, cash crops and economic trees. The rates used for economic trees/crops are classified according to 3 or 4 grades of maturity namely; seedling, immature, mature, and post mature. The assessment is done mainly by numerical counting and multiplying the number by a pre-determined rate. Economic trees by definition are long-term income producing agricultural investments each with a peculiar lifespan determined by the tree type.

The historical development of rates is not very clear but generally it has no scientific basis. Rates are fixed and reviewed without any clearly understood basis of its formulation. Previous studies (Kakulu, 2008) have shown the origin of the use of the rates system began in 1965 in Nigeria. The origin is based on a simple arithmetic calculation of crops on a unit by unit or stand by stand basis and scaled up to a unit rate per square meter or per hectare.

Reliable field information indicates that its development was based on an agreement between peasant farmers in Ugheli, in the former Mid-Western State, now Delta State of Nigeria and Shell BP at the time, (Kakulu, 2008). It provided a simple basis of calculating crops for compensation, one which farmers could identify with and possibly perform the calculations themselves as claimants during R-O-W land acquisition. While it is acceptable that mass appraisal techniques can be used in instances where it is not possible to conduct actual valuation of every structure or item due to scale, the methodology is intended to depend on a recent valuation following which unitization may be done and the corresponding rates per unit area developed. The developed rates may then be replicated on other sites with the usual adjustments to reflect the distinct characteristics of each site. It is not acceptable to use 'Rates' derived from historical values. For mass appraisal to succeed, recent valuation is required. The basis of computation and compilation of the existing compensation rates in Nigeria is not clear. Over the years, these rates have continued to be reviewed from time to time using existing rates as a benchmark and applying a percentage increase without performing new valuation as is required by valuation principles and methods. Following the enactment of the Estate Surveyors and Valuers Registration Act in 1975 and the promulgation of the Land Use Act in 1978, the role of the valuation profession regarding land valuation for various purposes is not in doubt. However, the issue remains that the profession has been very slow to effect the required transformation of procedures from the practice before the Act to professional and international best practices in this area.

COMPARABLE ANALYSIS OF SELECT COMPENSATION RATES

The team conducted a review of existing rates using what represents the most up-to-date compensation rates in Nigeria as at 2014.

CONFERENCE OF THE DIRECTORS OF LANDS IN NIGERIA (CDLN) 2008 RATES.

The Conference of the Directors of Lands in Nigeria (CDLN) is a meeting of all Directors of Lands in each State in the Federation and the Chief Lands Officer of the Federation. The Conference of Directors of Lands in Nigeria (CDLN), in 2008, reviewed the National Technical Development Forum (NTDF) proposed harmonised rates prepared by the six geo-political zones in Nigeria. In exercise of the powers conferred on the 'Appropriate Officer' by the Land Use Act, the CDLN they adopted the new harmonized compensation rates for use within the six geo-political zones in Nigeria. The main purpose of the new rates was to deal with the disparity in compensation rates within contiguous States in each zone by the introduction of a harmonized rates system. These rates, popularly referred to as the NTDF Rates are the outcome of a consultative process facilitated by the National Technical Development Forum (NTDF) in Nigeria between 2006 and 2008. These NTDF rates were compiled following a series of zonal workshops organized by the (NTDF) on Land Administration in Nigeria between 2006 and 2008 and zonal meetings of the Directors of Land on the Harmonization of Rates of Compensation. The NTDF Rates are used extensively in this research as a basis for a comparative review alongside of other rates. The choice of this particular set of 'Rates' is grounded in the provisions of the Oil Pipelines Act which specifically states that, compensation assessment should follow the provisions of the Land Use Act so far as they are applicable. The Land Use Act specifies the role of the 'Appropriate Officer' in deciding on a method of assessment and the team considered therefore that a compilation of 'rates' achieved through a consultative process involving six geo-political zones and published in a Report by the Department of Lands and Housing of the Federal Ministry of Works, Housing and Urban Development was considered to be suitable. The compilation which shows predominant crop types in the 6 South-South Geo-political zone provided a guide in the selection.

DEPARTMENT OF PETROLEUM RESOURCES (DPR) COMPENSATION RATES OF 1998.

The Report of the Technical Committee on the Assessment of Damages due to Oil Pollution recommended compensation rates payable for items susceptible to damage due to oil pollution in their 1998 report. The activities of this committee were prompted by the lack of a uniform framework to systematically deal with oil related compensation issues which had led to the general feeling of dissatisfaction, resentment and poor relationship between oil operators and oil producing communities. The report provides guidelines and rates envisaged for compensation for damages due to oil pollution. The DPR guidelines provide for several heads-of-claim including loss or injury to the claimant, damage to land which should be assessed on rate per unit area basis, loss in fertility and aesthetics. It provides specific rates for economic crops and trees. The report further recommends the cost of clean-up or replacement and contamination for equipment and materials while damage to buildings and structures should be assessed by experts. Further reference is made to the DPR Rates in this report.

OIL PRODUCERS TRADES SECTION (OPTS) RATES 1997.

The Oil Producers Trades Section (OPTS) is a trade group within the Lagos State Chamber of Commerce, Mines and Industry. Its membership is drawn largely from only the oil companies. In 1997, this group compiled a new set of rates in response to an outcry following the non-review of existing national compensation rates since 1984. The OPTS rates represented the highest levels of compensation rates in 1997 and although it was used extensively, it had no legal backing or jurisdiction within the framework of statutory valuation in Nigeria. While still privately driven and used in different circles, the OPTS rates have not been used in this study for this reason. The OPTS Rate provides for compensation to land by capitalizing on rental values over a 20 year term and specifies a 5% capitalization rate with rent reviews in the 10th year. This method is commendable and can be adopted going forward.

COMPARABLE ANALYSIS OF NTDF AND DPR RATES

A comparative analysis of NTDF and DPR rates was performed and is presented below in two categories - Economic Trees and Economic Crops.

ANALYSIS OF ECONOMIC TREES IN RATES PER STAND

In 2008, the NTDF rates were adopted for use in Nigeria by the Conference of Directors of Lands in Nigeria (CDLN). The rates in Table 2 below present a cross section of rates for the seven tree types selected for study.

TABLE 2- NTDF RATES PER STAND FOR ECONOMIC TREES

TREE TYPE	SOUTH EAST	NORTH CENTRAL	SOUTH WEST	NORTH EAST	NORTH WEST	SOUTH SOUTH
BANANA	1500	1000	250	1500	10,000	80
PLANTAIN	1500	1500	500	1500		1000
PALM FRUIT	2500	3000	2200		5000	600
COCONUT	1500	4000	250	1000	2000	225
RAFFIA PALM	800	1000	1000			800
MANGO	1800	800	800	3500		2000
ORANGE	2000	4000	4000	5000		2000

SOURCE - EXTRACTED FROM PUBLISHED SCHEDULE OF RATES (MATURE), NTDF, 2008

All Rates in the following charts and tables are expressed in the Nigerian Naira currency and exchange rate used is N165 to \$1.00

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BANANA

Bananas are perennial crops that take the appearance of trees as they mature, although they are crops, they are frequently classified as trees for the purpose of compensation. They are a major source of food, medicine, clothing, tools, shelter, furniture, paper, and handicrafts. Bananas (*Musa spp. L.*) are important staple foods for nearly 400 million people in many developing countries, especially in Africa. Total global production ranks fourth after maize, rice and wheat. Bananas provide food security and income for small-scale farmers who represent the majority of producers. Only 15% of global banana and plantain production is involved in international trade – most production is consumed domestically. ¹⁰Bananas are rich in vitamin C, B6, minerals and dietary fibre and provide a rich energy source, with carbohydrates accounting for 22% and 32% of fruit weight for banana and plantain, respectively. Bananas are cultivated in nearly all tropical regions of the world.

The NTDF rates for Banana analysed in Figures 1-3 below shows wide discrepancies in the zones and between the three different grades of maturity.

FIGURE 1- BANANA - NTDF RATES PER STAND (SEEDLING)

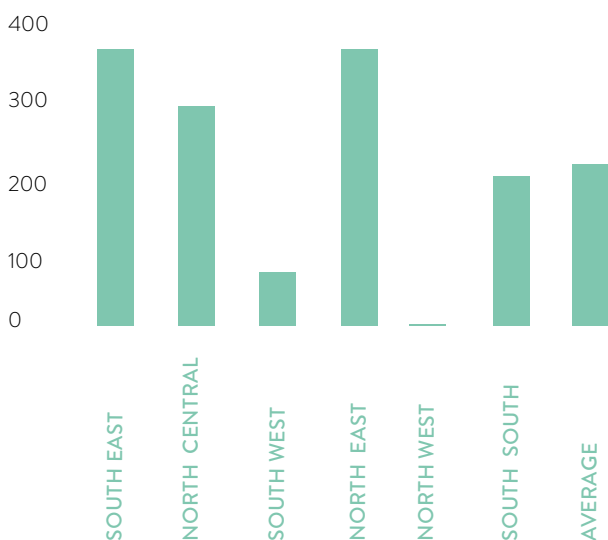
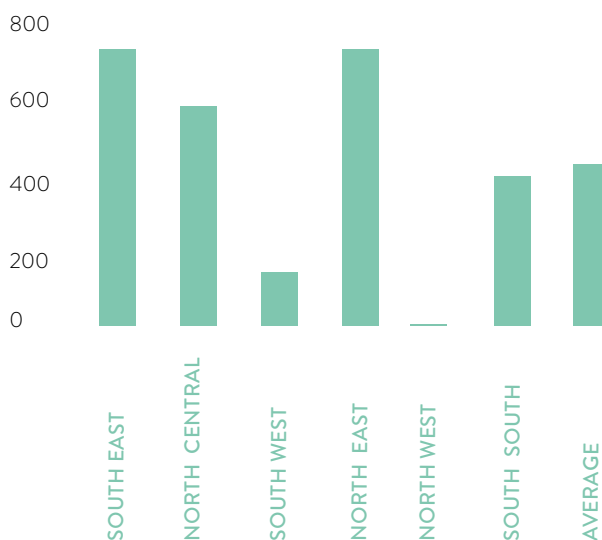
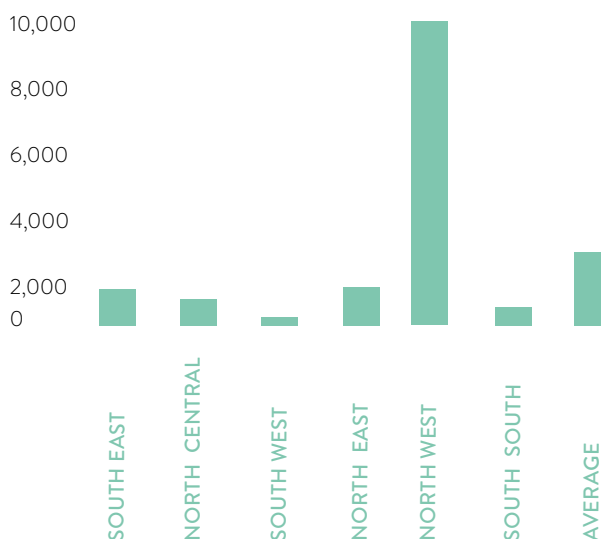


FIGURE 2- BANANA - NTDF RATES PER STAND (IMMATURE)



The North-West zone provides no rates for banana seedlings or the immature banana plant. It only provides a rate per stand for a mature Banana tree. The rates in the North-West at N10,000 (\$61.2) exceeds that of the South-western zone by 4000% and that of the South-South zone by 1250%.

FIGURE 3- BANANA - NTDF RATES PER STAND (MATURE)



The National average of N2,500 per mature banana tree (\$15.30) exceeds the applicable rates in all other zones apart from the North-west. The picture clearly portrays the lack of consistency. The reasons for such wide discrepancies are difficult to comprehend and more importantly the compensation rate for a fully grown Banana tree in the South-south zone is ridiculously low at a rate of N800 per tree. This amount in the market would probably buy about 20 individual banana fingers. It is difficult to comprehend how a farmer can expect to be adequately compensated with such rates. At N10,000 per stand obtainable in the North-west zone, provision is probably made for harvesting and recovery of some labour costs associated with tending the plant. The lowest zone in the compilation, is that of the South-West where the value is N250 per stand of a mature banana tree. An explanation for this could also be that this plant grows freely in the tropical rainforest of the South-western part of Nigeria and as a result the supply levels are very high when compared with other parts of the country where it has to be cultivated. Rates in the Southern zones are generally lower than in the North but there is a wide range of N9,750 between the lowest and highest rates.

TABLE 3- - COMPARATIVE ANALYSIS OF NTDF AND DPR RATES FOR BANANA

TREE TYPE	NTDF AVERAGE	DPR RATE	% INCREASE OF NTDF OVER DPR RATES
MATURE	2508	500	502%
IMMATURE	446	250	178%
SEEDLING	220	125	176%

When the average NTDF rate in each grade of maturity is compared with the DPR Rates, the differences are glaring particularly in the mature grade as shown in the Table 3. The NTDF Rates are currently significantly higher than the DPR 1998 rates. The National average of NTDF rate of N2,508 for the mature banana is approximately 501% higher than the DPR recommended rate of N500 compiled approximately 10 years earlier. However, it still does not reflect current market realities.

PLANTAINS

NTDF rates for Plantains shown in Figures 4-6 shows a similar pattern to that of the banana plant. In the absence of any alarming values from the North-West Zone, the average rates per stand in the three grades of maturity are more evenly spread. The average rate for the Plantain seedling is N266.00 (\$1.63); N541.00 (\$3.31) for the immature plant and N1500.00 (\$9.19) for a full grown plantain tree. The more serious consideration here is the economic life of a tree and whether payment compensation should be made for only one farming season as the rates suggest or for more than one farming season. If the economic life of a Plantain tree is approximately 5 years, allowing for labour input at a known rate per-annum, and profits, the existing rates are clearly not adequate.

FIGURE 4- PLANTAIN - NTDF RATES PER STAND (SEEDLING)

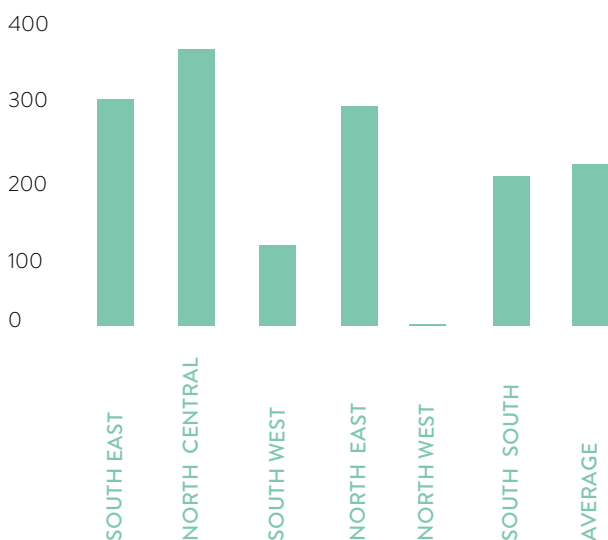


FIGURE 5- PLANTAIN - NTDF RATES PER STAND (IMMATURE)

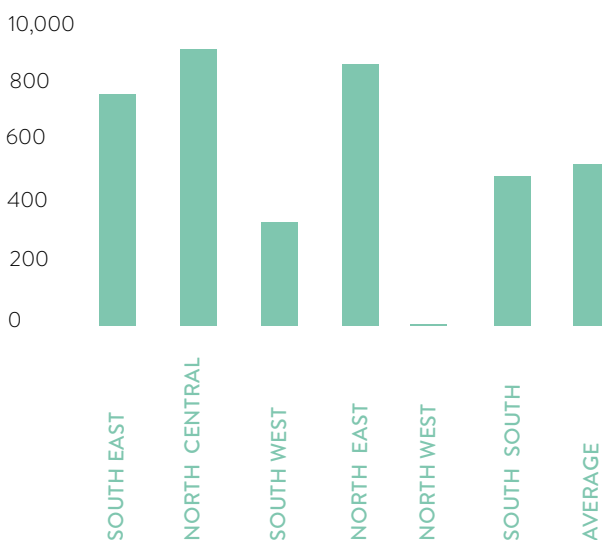
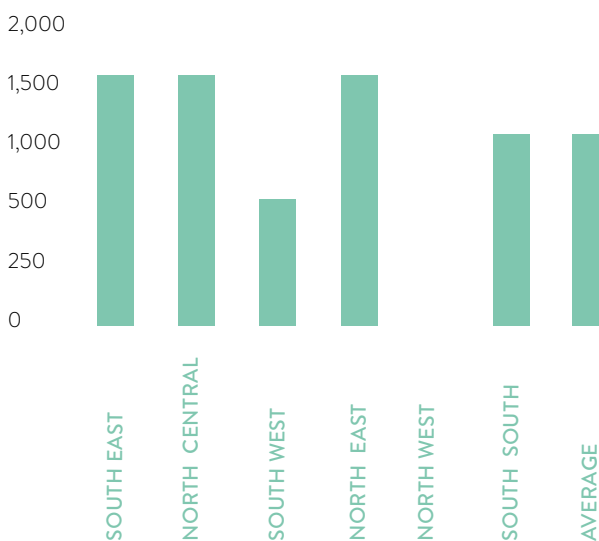


FIGURE 6- PLANTAIN - NTDF RATES PER STAND (MATURE)



When the average NTDF rate is compared with the DPR Rates, the differences are high particularly in the mature grade as shown in Table 4. The NTDF Rates compiled in 2008 are higher than the DPR 1998 rates for plantains.

TABLE 4- - COMPARATIVE ANALYSIS OF NTDF AND DPR RATES FOR PLANTAINS

TREE TYPE	NTDF AVERAGE	DPR RATE	% INCREASE OF NTDF OVER DPR RATES
MATURE	1000	750	133%
IMMATURE	542	375	145%
SEEDLING	266	180	148%

OIL PALM FRUIT

The NTDF rates for Oil Palm fruit in Figures 7-9 shows discrepancies in the zones and between the three different grades of maturity. For instance, the North-East zone provides no rates for Oil palm fruit in all 3 grades of maturity. The rates in the North-West at N5,000 per stand exceeds that of the South-south zone which is only N600, by 833%. The South-South zone is home to Oil palm processing and it is widely consumed in this zone. The paltry sum provided for compensation when compared with other zones is a disturbing sum of only N600 per tree compared to the south west and south eastern zones.

FIGURE 7- PALM FRUIT - NTDF RATES PER STAND (SEEDLING)

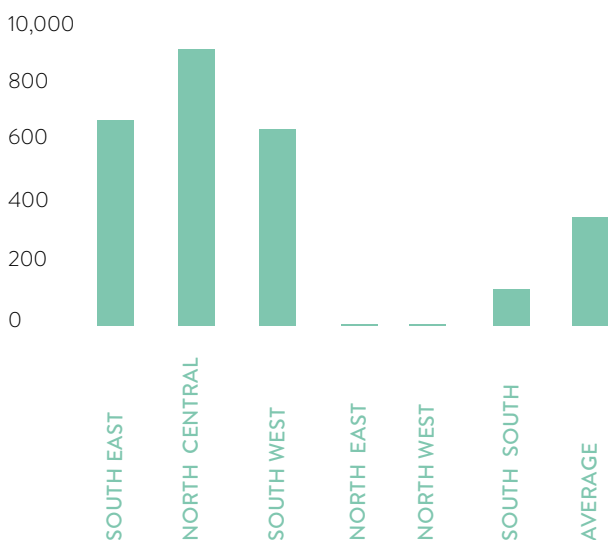


FIGURE 8- PALM FRUIT - NTDF RATES PER STAND (IMMATURE)

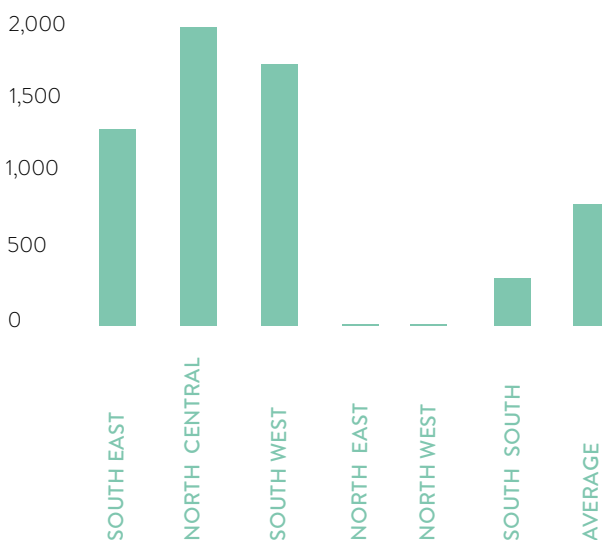
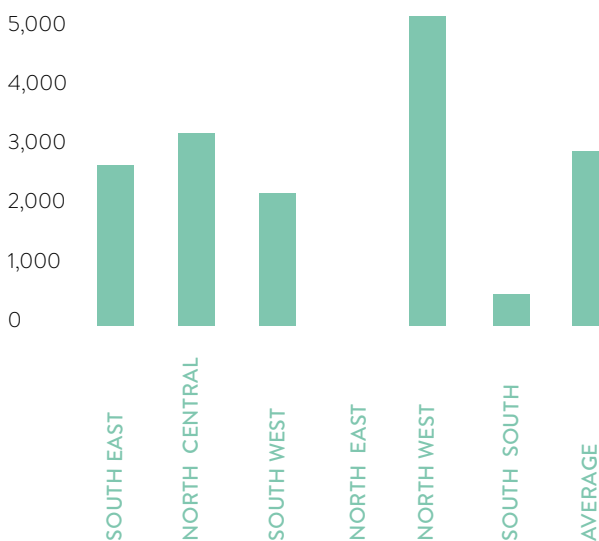


FIGURE 9- PALM FRUIT - NTDF RATES PER STAND (MATURE)



Comparatively, the National average of NTDF rate of N2,660 for the mature oil palm fruit is approximately 53% of the DPR recommended (Table 5) rate for this tree at which was N5,000 at the time it was compiled 10 years earlier. The rationale behind the fixing of these rates remains a mystery and need further investigation.

TABLE 5- COMPARATIVE ANALYSIS OF NTDF AND DPR RATES FOR OIL PALM FRUIT

TREE TYPE	NTDF AVERAGE	DPR RATE	% INCREASE OF NTDF OVER DPR RATES
MATURE	2600	5000	188%
IMMATURE	815	2500	307%
SEEDLING	369	1500	386%

COCONUT

The NTDF rates for Coconut shown in Figures 10-12 shows some discrepancies in the zones and between the three different grades of maturity and is highest in the North-West and North Central Zones. The South-South zone has a ridiculously low rate at N225 for the mature grade of coconut against the NTDF average rate of N2288. The rates in the North-West at N5,000 per stand exceeds that of the South-south zone which is only 225, by 2222%. Such alarmingly wide discrepancies show how unrealistic it might be to depend on the use of pre-determined rates in place of actual valuation and development of rates for use on a particular project within a specific measurable timeframe.

FIGURE 10- COCONUT - NTDF RATES PER STAND (SEEDLING)

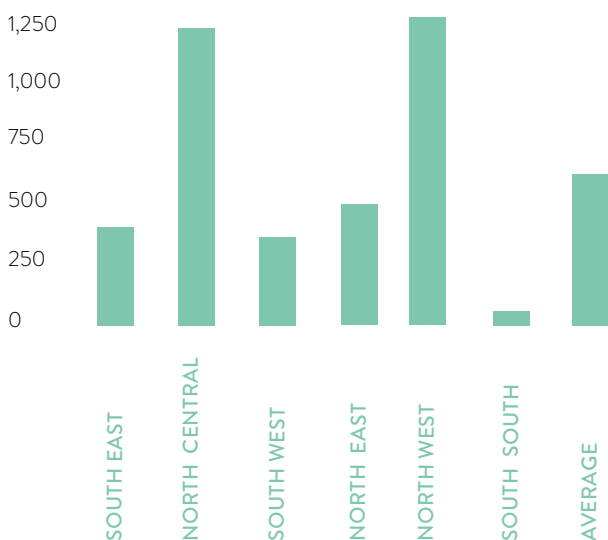


FIGURE 11- COCONUT - NTDF RATES PER STAND (IMMATURE)

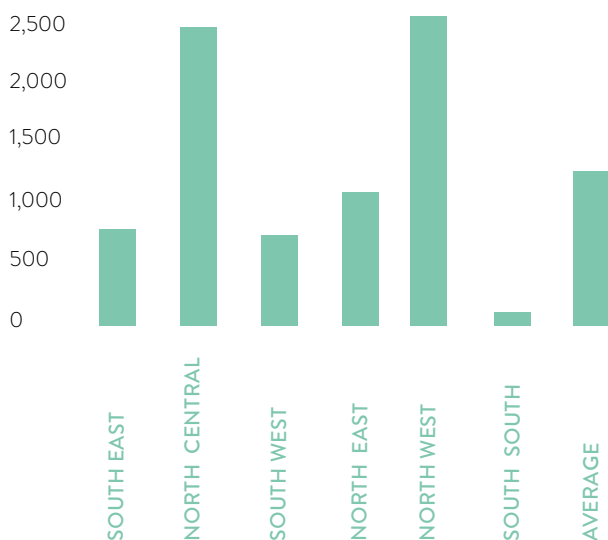
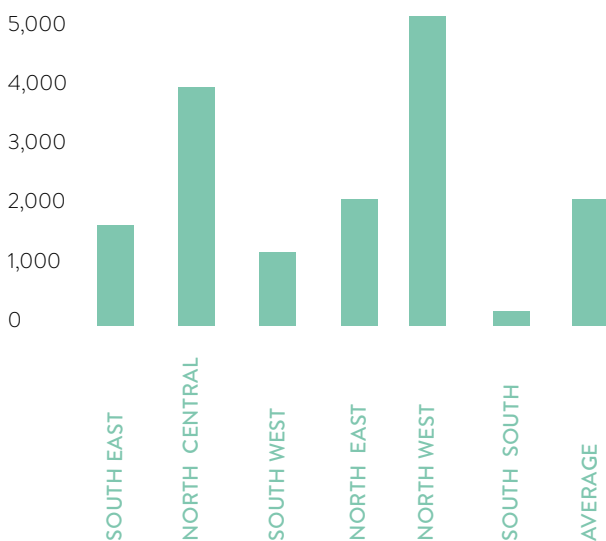


FIGURE 12- COCONUT - NTDF RATES PER STAND (MATURE)



Comparatively, the National average of NTDF rate of N2,288 for the mature grade of Coconut is approximately 42% of the DPR recommended rate of N5,450 compiled 10 years earlier. The rate for the South-south zone at N225 represents only 4% of the DPR recommended rates for use in oil producing States. This is a rather worrying find considering that harmonized rates are recent and expected to reflect market realities yet they are significantly lower than DPR rates of 1998.

TABLE 6- COMPARATIVE ANALYSIS OF NTDF AND DPR RATES FOR COCONUT

TREE TYPE	NTDF AVERAGE	DPR RATE	% INCREASE OF NTDF OVER DPR RATES
MATURE	2288	5450	238%
IMMATURE	1244	2750	221%
SEEDLING	613	1360	222%

RAFFIA PALM

The NTDF rates for Coconut shown in Figures 10-12 shows some discrepancies in the zones and between the three different grades of maturity and is highest in the North-West and North Central Zones. The South-South zone has a ridiculously low rate at N225 for the mature grade of coconut against the NTDF average rate of N2288. The rates in the North-West at N5,000 per stand exceeds that of the South-south zone which is only 225, by 2222%. Such alarmingly wide discrepancies show how unrealistic it might be to depend on the use of pre-determined rates in place of actual valuation and development of rates for use on a particular project within a specific measurable timeframe.

FIGURE 13 - RAFFIA PALM - NTDF RATES PER STAND (SEEDLING)

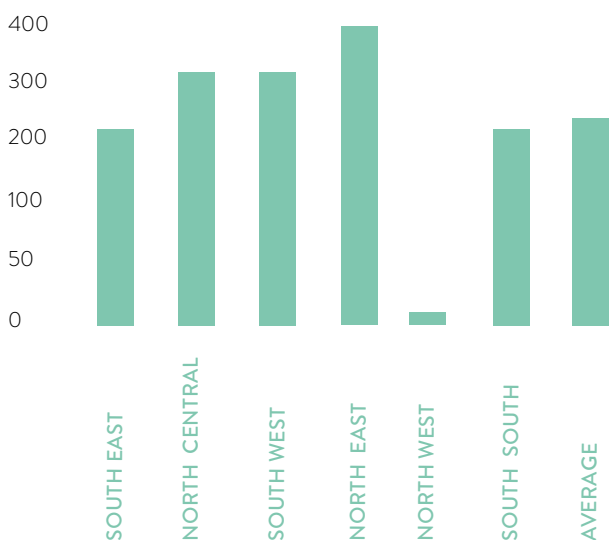


FIGURE 14 - RAFFIA PALM - NTDF RATES PER STAND (IMMATURE)

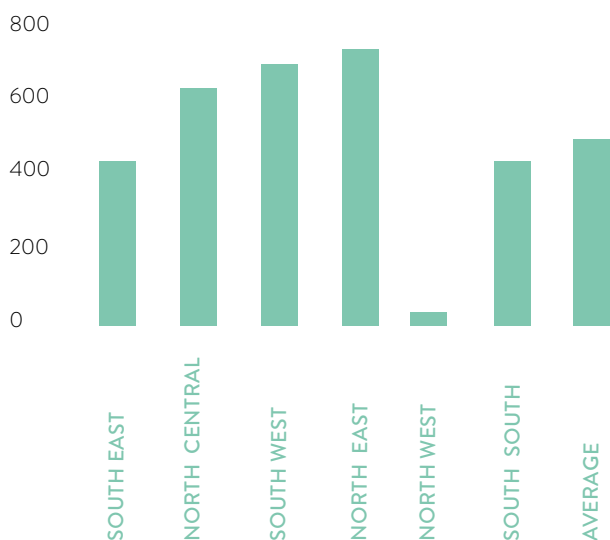
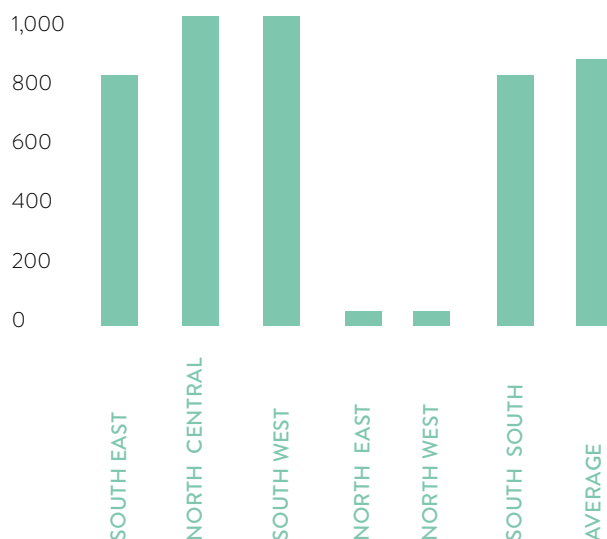


FIGURE 15 - RAFFIA PALM - NTDF RATES PER STAND (MATURE)



In comparison, the National average NTDF rate of N900 for the mature oil palm fruit is approximately 45% of the DPR recommended rate of N2,000 compiled 10 years earlier. The NTDF rates are expected to reflect market trends and reality in each zone. It is therefore possible that either the DPR rates of 1998 were over-inflated or that the current rates are not a true reflection of the market and therefore arbitrary. On the whole, the historic 1998 rates are higher.

TABLE 7- COMPARATIVE ANALYSIS OF NTDF AND DPR RATES FOR RAFFIA PALM

TREE TYPE	NTDF AVERAGE	DPR RATE	% INCREASE OF NTDF OVER DPR RATES
MATURE	900	2000	222%
IMMATURE	475	1000	211%
SEEDLING	229	500	218%

MANGO

The NTDF rates for the Mango tree shown in Figures 16-18 show some discrepancies in the zones and between the three different grades of maturity. It is generally higher in the Northern Zones and highest in the North-West where the immature grade has a compensation value of N5,000 which is higher than the mature grades for Mango in all other zones.

The South-west zone has the lowest rate at N800 which is 20% of the North-west rate at N4,000 and 33% of the NTDF average rate for this tree.

In comparison, the National average of NTDF rate of N2,420 for the mature grade of the Mango tree is approximately 60% of the DPR recommended rate of N4,000 compiled 10 years earlier. The rate for the South-west zone at N800 represents only 20% of the DPR recommended rates for use in oil producing States.

FIGURE 16 - MANGO - NTDF RATES PER STAND (SEEDLING)

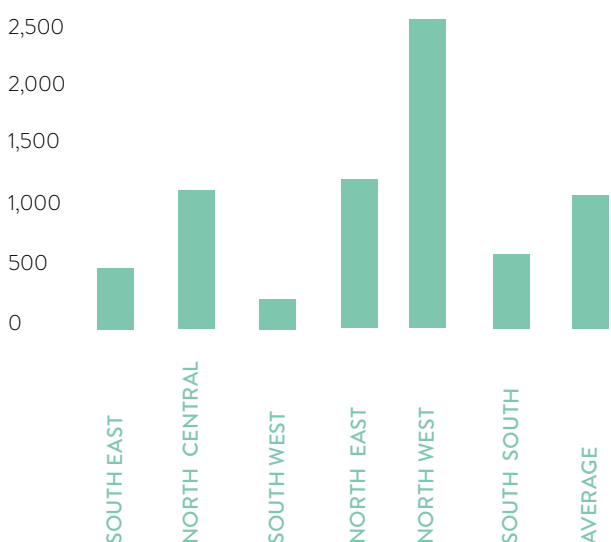


FIGURE 17 - MANGO - NTDF RATES PER STAND (IMMATURE)

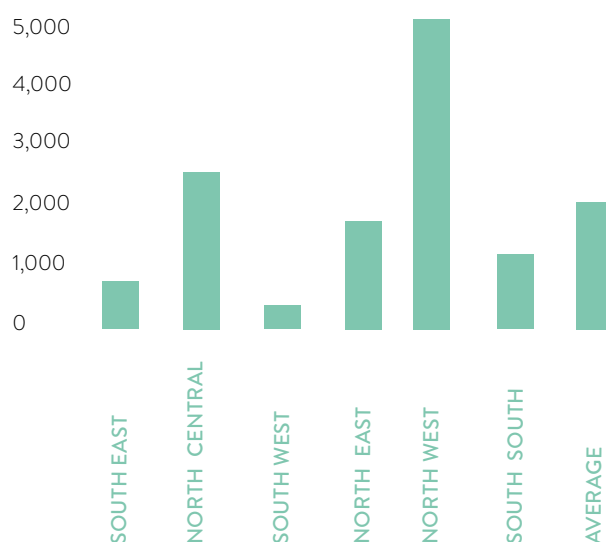
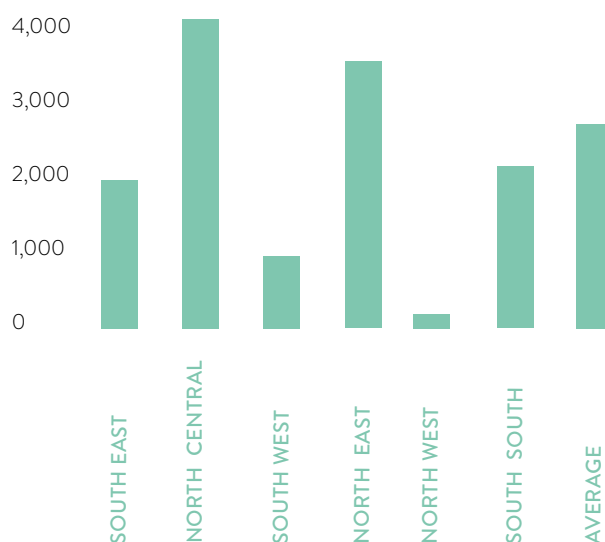


FIGURE 18 - MANGO - NTDF RATES PER STAND (MATURE)



ILLUSTRATIVE VALUATION OF A MANGO TREE

The valuation of a Mango tree is used as an illustrative example because it grows widely in the study location. Our literature search indicates that a mango tree has a lifespan of up to 300 years and fruits once a year. In a typical fruiting season, a mango tree can attract for its owner an income of between N25,000 to N50,000 depending on the size of tree and maturity. Using a net income of N35,000 and the investment method of valuation, we considered the security income which is guaranteed on a yearly basis (subject of course to any unforeseen catastrophes) and arrived at a capital value today of a mango tree over a 30 year capitalisation period as being in the region of N750,000. Our valuation of loss based on the capitalisation of lost income and allowing a 50% deduction for labour input, transportation to markets and other incidentals, would leave the owner of such a tree with an estimate of approximately N375,000 per tree which is roughly \$2,250. This value could be much higher where such trees are suppliers to fruit juice canning and packaging industries. Comparing this value with the existing NTDF compensation 'Rates' for a mature mango tree at the highest rate of N4,000 from the northern zone in the DPR rates and the average NTDF rate of approximately N2,400 is simply ridiculous and injustice as far as compensation is concerned. It implies that a full grown mango tree in Nigeria can be compulsorily acquired or destroyed for as little as \$25.20 for a mature tree; less than \$12 for an immature tree; and approximately \$7 for a young tree/seedling. The use of rates is not a fair approach particularly as they cannot be updated regularly due to the associated costs.

ORANGE

The NTDF rates for the Orange tree in Figures 19-21 shows slight discrepancies in the zones and between the three different grades of maturity. It is generally higher in the North-East and North-Central zones. The North-West has no rates for oranges. The South-west zone has the lowest rate at N1,000 for the mature grade which is 20% of the North-east rate at N5,000 and 36% of the NTDF average rate for this tree. The National average NTDF rate of N2,800 for the mature grade of the Orange tree represents approximately 60% of the DPR recommended rate of N4,600 compiled 10 years earlier.

The rate for the South-west zone at N1,000 represents only 21% of the DPR recommended rates for use in oil producing States. A total of five out of the seven trees analysed shows that the DPR rates of 1998 are significantly higher than the 2008 rates. It is possible that the DPR rates were inflated or that the NTDF rates are not realistic. This is however beyond the scope of this work that requires in-depth analysis.

FIGURE 19 - ORANGE - NTDF RATES FOR ORANGE PER STAND (SEEDLING)

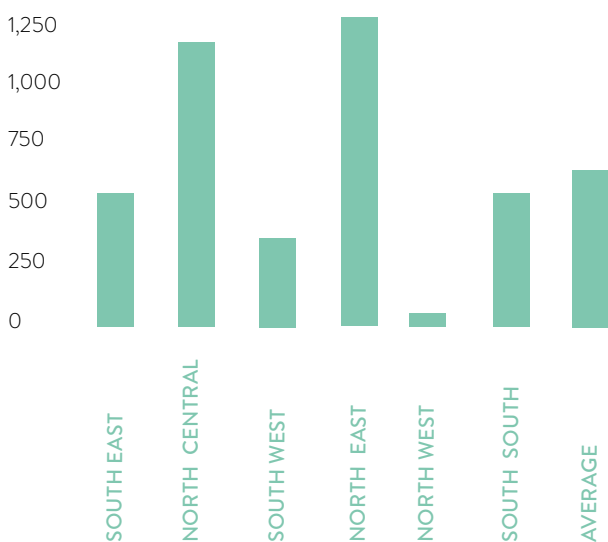


FIGURE 20 - ORANGE - NTDF RATES PER STAND (IMMATURE)

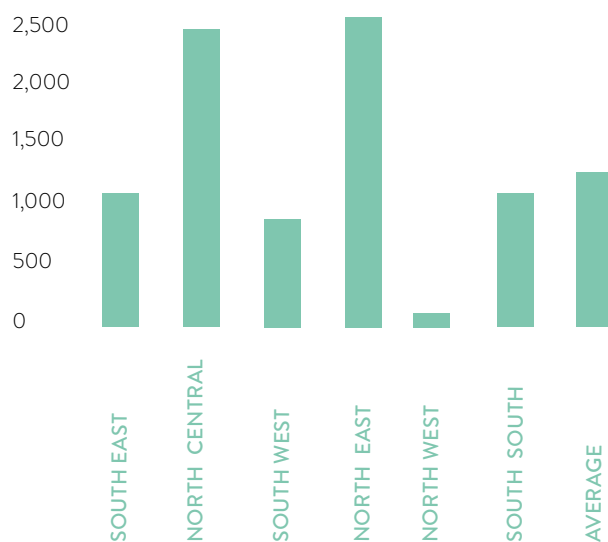


FIGURE 21 - ORANGE - NTDF RATES PER STAND (MATURE)

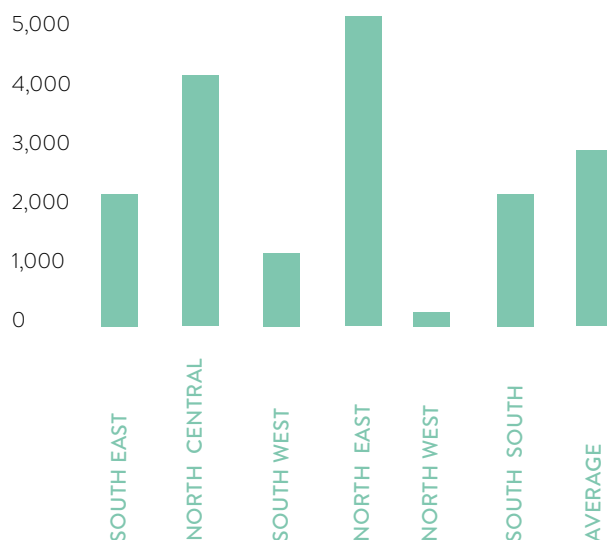


TABLE 9- COMPARATIVE ANALYSIS OF NTDF AND DPR RATES FOR ORANGE

TREE TYPE	NTDF AVERAGE	DPR RATE	% INCREASE OF NTDF OVER DPR RATES
MATURE	2800	4600	164%
IMMATURE	1267	2300	182%
SEEDLING	675	1550	170%

ANALYSIS OF ECONOMIC CROPS IN RATES PER HECTARE

The NTDF rates were adopted for use in Nigeria by the Conference of Directors of Lands in Nigeria. The rates in Table 10 present a cross section of rates extracted from NTDF rates.

TABLE 10- NTFD RATES FOR CROPS EXTRACTED FROM PUBLISHED SCHEDULE OF RATES, NTFD (MATURE), 2008

TYPE OF CROP	SOUTH EAST	NORTH CENTRAL	SOUTH WEST	NORTH EAST	NORTH WEST	SOUTH SOUTH
PEPPER		120,000		80,000	8,000	105,000
CASSAVA		150,000		30,000	200,000	800,000
YAM		350,000		100,000	80,000	1,000,000
GROUNDNUT		50,000		80,000	100,000	70,250
COCOYAM		100,000		25,000	80,000	56,250
SWEET POTATO		50,000		30,000	50,000	
MAZIE (CORN)		100,000		50,000	80,000	112,500
SUGARCANE		240,000		30,000	150,000	105,250

PEPPER

The NTDF rates for Pepper shows similarities within the zones in rates per hectare. Two zones have not indicated rates for the mature grade of pepper and are therefore incomplete. This is part of the challenges experienced in the use of rates.

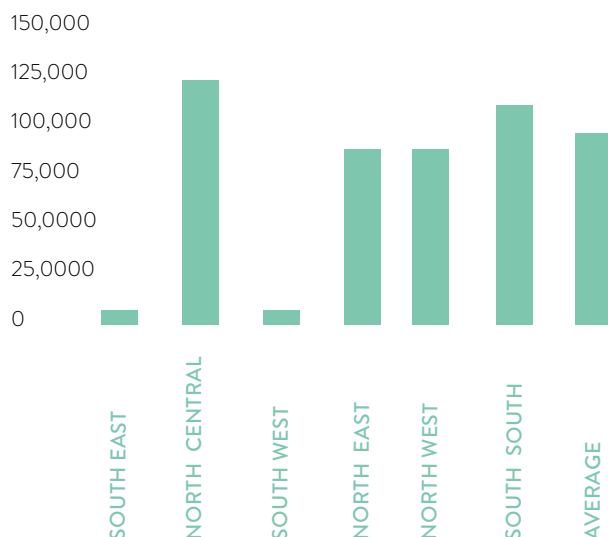
TABLE 11 - COMPARATIVE ANALYSIS OF NTDF AND DPR RATES FOR PEPPER NTDF (MATURE), 2008

GRADE	NTDF AVERAGE	DPR RATE	% INCREASE OF NTDF OVER DPR RATES
MATURE	96,250	23,000	418%

The average NTDF rate of N96,250 exceeds the 1998 DPR rate by over 400%. Our research shows that the popular scotch bonnet pepper and other variants can grow between 7,500 to 12,500 stands of pepper on a hectare of land or simply expressed as 0.75stands/m² to 1.25stands/m². With a an estimated yield of between 900kg/ha to 1,500 kg/ha per week over a 5-month (20-week) harvesting period, the total yield per hectare of scotch bonnet peppers can be estimated at somewhere between 18,000kg to 30,000kg per hectare per annum or 1.8kg/m² to 3.00 kg/m² based on density of stands planted. From our analysis in Fig 22, the NTDF average compensation value estimated at N96,250/ha works out at approximately N5.30 (\$0.03) per/kg for the 1.8kg/m² yield farm, and approximately N3.20 (\$0.02) per/kg for the 3.00kg/m² yield farm. It produces a unit rate/stand of N12.83 for the 0.75stands/m² farm and N7.70 for the 1.25stands/m² farm. Our field survey indicates that most subsistence farmers in oil producing areas typically farm on plots measuring between 500m² to 1000m² of land depending on how much land is allotted to them during each planting season by the family. Farmers who desire additional land usually have to rent it paying an annual rental to other community members. Substituting the values from our initial analysis using an average farm size of 750m² indicates that a farmer who loses a 750m² pepper farm due to oil pollution in Nigeria can expect to get a compensation value of N9,622(\$59) only, for the 0.75stands/m² type farm and N5,775 (\$35) only, for a 1.25stands/m² type farm on the NTDF rate/ha basis.

This situation is more complex where a zone has two sets of NTDF rates - rates per stand as well as rates per hectare. These rates are not representative of each other in any manner, the rate/stand for pepper is N100/stand which is approximately N75/m² for the 0.75stands/m² type farm. The rate per hectare, of N105,000, is approximately N10.50/m² and which is a flat rate irrespective of density of stands. Both rates are contained in the same NTDF schedule of approved rates for the South-South zone; compiled by the same 'appropriate officers' and yet the disparity is not only alarming but clearly lacks any scientific explanation on the basis of its compilation and computation. Applying the South-south unit rates/stand to a 750m² polluted pepper farm will attract a compensation value of N56,250 (\$344) compared with the N10.50/m² which would produce a compensation value of only N7,875 (48.1). The rate/stand is 714% higher than the rate per hectare for the same crop and in the same geo-political zone.

FIGURE 22 - NTDF RATES PER HECTARE FOR PEPPER (MATURE)



CASSAVA

A farmer who loses a 750m² to pollution in the south-south zone can expect to get N60,000 as compensation in the south-south zone using the NTDF rates and only N2,850. From the study, the yield for crops like cassava on a rate per hectare basis using the figures from existing compensation rates in Nigeria, represent a very small fraction of what is obtainable as a net yield. The deprived receivable income should be valued and capitalized accordingly. The study is an extensive one and experienced setbacks due to time constraints.

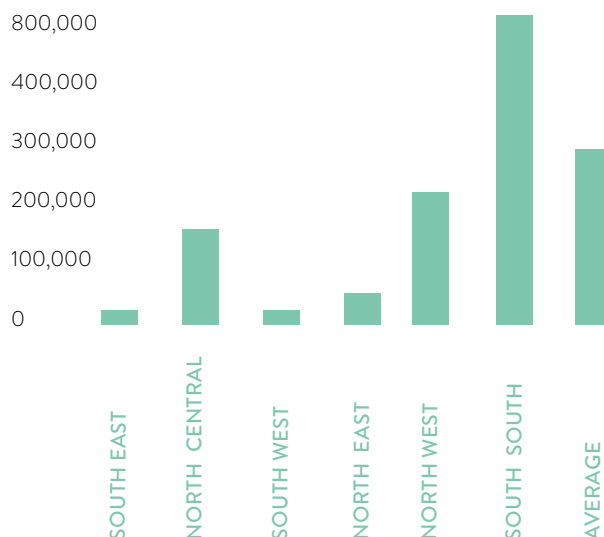
TABLE 12 - COMPARATIVE ANALYSIS OF NTDF AND DPR RATES FOR CASSAVA

GRADE	NTDF AVERAGE	DPR RATE	% INCREASE OF NTDF OVER DPR RATES
MATURE	295,000	38,000	776%

Cassava is almost always intercropped, except on large-scale mechanized farms. Farmers intercrop cassava usually with vegetables, plantation crops (such as coconut, coffee), yam, sweet potato, melon, maize, rice, groundnut, and other legumes. Intercropping pattern depends on environmental conditions and food preferences of the region, (IITA)¹¹. The optimum spacing for cassava depends on whether it is mono-cropped, inter-cropped or mixed-cropping. In mono-cropping the optimum spacing is one stand/m² which is 10,000 stands/ha as several studies and reliable literature indicate. There are several varieties of cassava but on the average a yield of between 15 to 35 tonnes may be harvested on one hectare of land after a 12 to 18-month waiting period. Cassava yields between 15 and 30 tonnes per hectare of fresh tubers.

The average NTDF rate of N295,000 gives a rate/stand of N29.50 and while the 1998 DPR rate/stand is N3.80. The average NTDF rate exceeds the DPR rate by over 776%. The rate in the South-south zone of N800,000/ha produces a rate/stand of N80 and exceeds the DPR rates by an 2105% yet is not a true reflection of market realities considering the high cost of labour and the fact that even the cassava stem is profitable.

FIGURE 23- NTDF RATES PER HECTARE FOR CASSAVA (MATURE)



YAMS

The average NTDF rate of N382,500 exceeds the 1998 DPR rate by over 588% while the South-south rate of N1,000,000 per hectare exceeds the DPR rate by over 1538%.

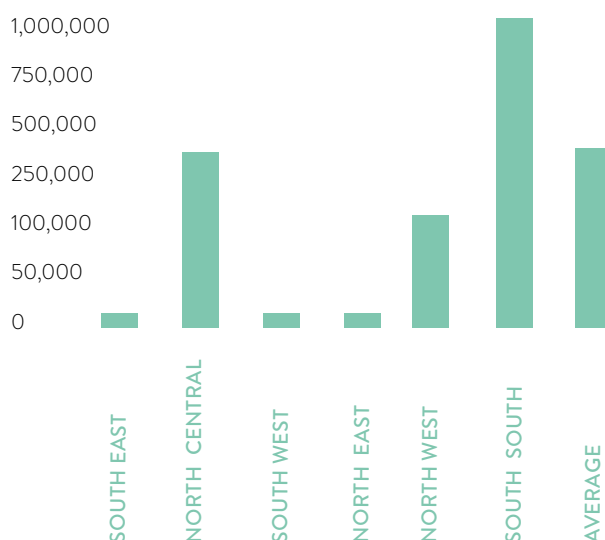
TABLE 13 - COMPARATIVE ANALYSIS OF NTDF AND DPR RATES FOR YAMS

GRADE	NTDF AVERAGE	DPR RATE	% INCREASE OF NTDF OVER DPR RATES
MATURE	96,250	23,000	418%

Yams are one of the most important crops in West and Central Africa, for food, income and socio-cultural practices. It provides income for many smallholders, especially women, who are active in the marketing of yam and yam products. Studies have shown that in Nigeria, 68% of those who grow yam as a primary means of livelihood belong to the poorest income group and in the traditional method, farmers keep about 30% of their harvest as seed yam to be used in the next season (IITA.org). In sub-Saharan Africa, yam is an important food crop, rendering the highest average food crop yields. In most cases, the lives of communities in yam growing areas revolve around the yam cycle. 12 Our research shows that the yams farms yield between 10 and 15 tonnes per hectare of land and can contain about 10,000 yams. From our analysis in Fig 24, the NTDF average compensation value which is estimated at N382,500/ha works out at approximately N38.50 per stand of yam or per m2. Using an average farm size of 750m2 indicates that a farmer who loses a 750m2 yam farm due to oil pollution can expect to get a compensation value of only N28,875.

Going by the prevailing labour costs averaging at N2,000 per day and the cost of clearing, seedling, planting, weeding and the removal of approximately 30% of the harvest as seed for the next farming season, the figures are quite low. The South-south rate of N1,000,000 per hectare which looks excessively high when compared with the other zones represents the most realistic figure averaging out at roughly N100 per tuber. This value is more in tune with market realities but does not take all the traditional practices associated with yam planting and harvesting into consideration. The applicable rates for the North-east and North-west are ridiculously low averaging out at N10 and N8 per tuber respectively.

FIGURE 24 - NTDF RATES PER HECTARE FOR YAMS (MATURE)



GROUNDNUT

Groundnut is grown on nearly 23.95 million ha worldwide with the total production of 36.45 million tons and an average yield of 1520 kg/ha in 2009 (FAOSTAT, 2011). China, India, Nigeria, USA and Myanmar are the major groundnut growing countries. 13 The crop is grown mostly by smallholder farmers under rain-fed conditions with limited inputs. Typical yields from groundnuts in Nigeria, Ghana and other parts of West and Central Africa, are between 800 to 1000kg per hectare.

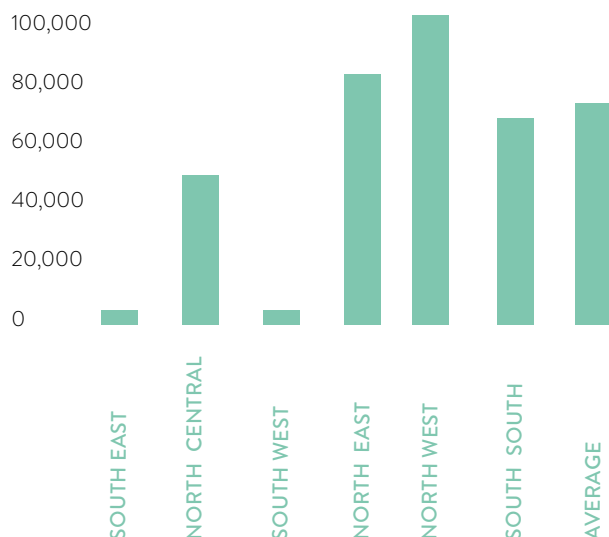
TABLE 14 - COMPARATIVE ANALYSIS OF NTDF AND DPR RATES FOR GROUNDNUTS

GRADE	NTDF AVERAGE	DPR RATE	% INCREASE OF NTDF OVER DPR RATES
MATURE	75,063	620,000	375%

From our analysis in Fig 25 and using a 1,000kg/Ha production, the NTDF average compensation value estimated at N75,063/ha, works out as approximately N75.06 per/kg and N7.50 per m2. Using an average farm size of 750m2, farmer who loses a 750m2 groundnut farm due to oil pollution in Nigeria can expect to get a compensation value of N5,625 (\$34) only. Using the highest rate from the North-west zone of N100,000/Ha, the compensation value will be N7,500 (\$45).

The rationale behind the fixing of these rates is simply not clear. Labour costs associated with tilling and preparing the land alone will be in multiples and the final compensation value and is not captured. With manual labour rates ranging from N1,500 to N2,500 per day, and the fact that several days and weeks will be expended in preparation, tilling, planting, weeding and harvesting of the crop, how is a farmer expected to have been adequately compensated who receives approximately 3 days wages for all his effort in cultivating 750m2 over several months.

FIGURE 25 - NTDF RATES PER HECTARE FOR GROUNDNUT (MATURE)



COCOYAM

The Cocoyam is a tuberous root which grows very well in most agro-ecological zones of Nigeria and Nigeria remains the largest producer of the crop in the world. 14 Typical farm yields are between 10 and 20 tonnes per hectare.

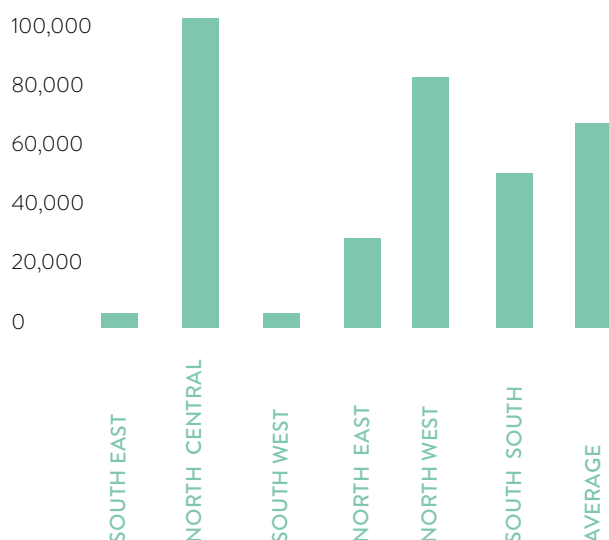
TABLE 15 - COMPARATIVE ANALYSIS OF NTDF AND DPR RATES FOR COCOYAM

GRADE	NTDF AVERAGE	DPR RATE	% INCREASE OF NTDF OVER DPR RATES
MATURE	65,313	22,000	297%

From our analysis in Fig 26, and using a 15 tonne (15,000kg/ha) production rate, the NTDF average compensation value estimated at N65,313/ha, works out as approximately N4.35 per/kg and N6.53 per m2. Using an average farm size of 750m2, farmer who loses a 750m2 coconut farm due to oil pollution in Nigeria can expect to get a compensation value of N4,897 (\$30) only. Using the highest rate from the North-Central zone of N100,000/Ha, the compensation value will be N7,500 (\$45) while in the South-south zone, the maximum compensation value is N4,215 (\$26). Similarly, the rationale behind the fixing of these rates is simply not clear. Labour costs associated with tilling and preparing the land alone will be in multiples and the final compensation value and are not captured. With manual labour rates at approximately N2000 per day, and the fact that several days and weeks will be expended in preparation, tilling, planting, weeding and harvesting of the crop, compensation assessed by this method can only be grossly insufficient.

The average NTDF rate of N65,313/ha exceeds the 1998 DPR rate by approximately 297% despite the fact that it is totally unrealistic considering current market trends and prevailing rates in the planting and sale of cocoyam.

FIGURE 26 - NTDF RATES PER HECTARE FOR COCOYAM (MATURE)



SWEET POTATO

The average NTDF rate of N43,333 exceeds the 1998 DPR rate by only 140% over a 10-year period. This is unrealistic when compared with the differences between both rates on other crop types. It is difficult to identify any pattern in the review of rates or any connection between crop types.

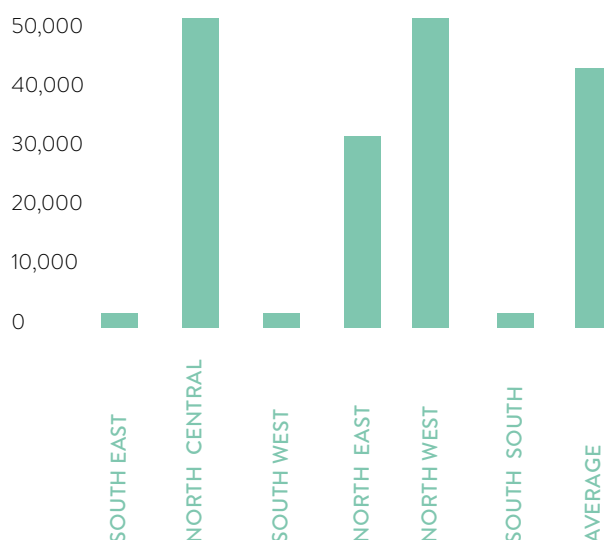
TABLE 16 - COMPARATIVE ANALYSIS OF NTDF AND DPR RATES FOR SWEET POTATOES

GRADE	NTDF AVERAGE	DPR RATE	% INCREASE OF NTDF OVER DPR RATES
MATURE	43,333	31,000	140%

Nigeria today is the 1st largest producer of sweet potato in Africa with 3.46mt annually. Globally, Nigeria is now the 2nd largest producer, China topping the list with 106, 197, 100MT. (FAO 2008).¹⁵ Typical farm yields of the improved species are between 30 and 40 tonnes/ha. From our analysis in Fig 27 and using a 30 tonne (30,000kg/ha) production rate, the NTDF average compensation value estimated at N43,333/ha, works out as approximately N1.44 per/kg and N4.33 per m2. Using an average farm size of 750m2, farmer who loses a 750m2 sweet potato farm due to oil pollution in Nigeria can expect to get a compensation value of N3,247 (\$20) only.

Using the highest rate from the North-west and North Central zone of N50,000/Ha, the compensation value will be N3,750 (\$23). The South-south zone which from our recent field survey now grows a lot of sweet potatoes, particularly in Bayelsa and Delta States, has no NTDF rates per hectare for this crop. Similarly, the rationale behind the fixing of these rates is not very clear. Labour costs associated with tilling and preparing the land will certainly be in multiples of these figures and the final compensation value cannot accommodate this. With manual labour rates ranging from N1,500 to N2,500 per day, and the fact that several days and weeks will be expended in preparation, tilling, planting, weeding and harvesting of the crop, compensation assessed by this method can only be grossly insufficient.

FIGURE 27 - SWEET POTATOES - NTDF RATES PER HECTARE (MATURE)



MAIZE (CORN)

Maize or corn is a cereal crop that is grown widely throughout the world in a range of agro-ecological environments. Nigeria today is the 1st largest producer of Maize in Sub Saharan Africa. 16 While acknowledging that there can be variations in the yield of maize per hectare based on different soil types and climatic variations, typical farm yields of the improved species are between 1.5 and 3 tonnes/ha.

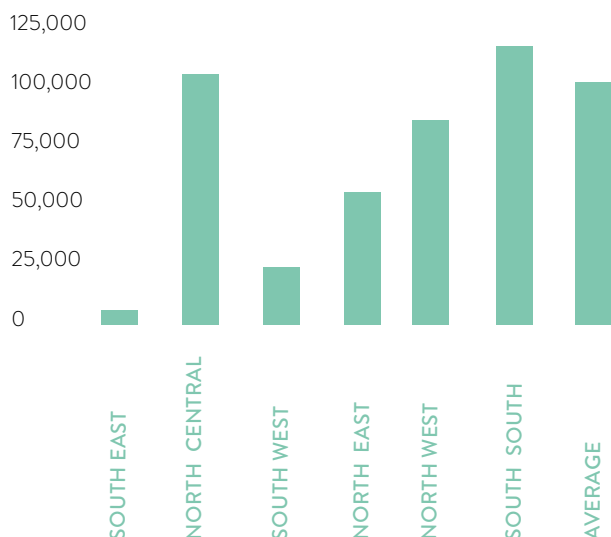
TABLE 17 - COMPARATIVE ANALYSIS OF NTDF AND DPR RATES FOR MAIZE (CORN)

GRADE	NTDF AVERAGE	DPR RATE	% INCREASE OF NTDF OVER DPR RATES
MATURE	90,625	24,000	378%

The average NTDF rate of N90,625 exceeds the 1998 DPR rate by 378% after a 10-year period. It is difficult to identify any pattern in the review of rates or any connection between crop types.

From our analysis in Fig 28 and using a 1.5 tonne (1,500kg/ha) production rate, the NTDF average compensation value estimated at N90,625/ha, works out as approximately N64 per/kg and N9.06 per m2. Using an average farm size of 750m2, farmer who loses a 750m2 sweet Maize farm due to oil pollution in Nigeria can expect to get a compensation value of N6,795 (\$41) only. Using the highest rate from the South-South zone of N112,500/ha, the compensation value will be N8,437.5 (\$51). The corn season is short-lived but intensive. With manual labour rates ranging from N1,500 to N2,500 per day, and the fact that several days and weeks will be expended in preparation, tilling, planting, weeding and harvesting of the crop, compensation assessed by this method can only be grossly insufficient.

FIGURE 26 - NTDF RATES PER HECTARE FOR COCOYAM (MATURE)



FINDINGS

Compensation by negotiation leaves a wide margin for subjectivity and corruption. It is not systematic and the disparity in values will tend to be much higher using this approach

Seven economic trees and seven crop types predominant in the Niger Delta region were analysed using the DPR Rates and the recent NTDF rates to assess the continued use of rates as a method for compensation or otherwise. The findings from the analysis reveal the following issues:

1. There is no scientific approach to the determination of rates that can be linked to market realities, cost of labour or material inputs in cultivating farmland.
2. The historic DPR rates which were developed in 1998 and are in some cases significantly higher than the 2008 NTDF rates developed 10 years later.
3. Rates are applied as single figures and are therefore unable to incorporate or reflect the degree of contamination and impact in its blanket application.
4. The rates developed in 2008 are already outdated in 2014 when compared with current market realities.
5. Value is time bound, it is not retrospective and cannot depend on historic rates since the date of assessment and valuation are crucial to the completeness of a valuation report.
6. Valuation of land and buildings cannot be subject to rates as market evidence or replacement cost can be estimated.
7. There is clear indication that the rates are arbitrary in most cases and are therefore not dependable.
8. The use of rates as part of a mass appraisal system is expensive as rates for all known types of crops, trees, ecosystem services, forest resources and other items subject to damage will need to be developed on an annual basis or at least updated if this system is to work.
9. Rates are incomplete in some zones no rates are provided for some crop types.
10. Current rates are completely inadequate to the extent that they do not address the yield or potential yield of farmland.
11. Rates do not reflect the true position of the Use Value of Value -in-use of farmland to peasant farmers which should form the basis of their claims and not otherwise.
12. They do not consider the farmers labour input which includes time spent farming, tilling and monitoring the progress of the tree/crop.
13. Rates do not make any provision for return on investment and unexpired term of the agricultural asset in the form of a tree.
14. Annual derivable income is totally disregarded whereas such income or income potential should be adequately captured and utilised to form the total value of loss to the tree owner.

PROPOSED OIL SPILL COMPENSATION RATES MECHANISM

Valuation of contaminated lands is an estimation of the capital value of loss to land owners due to the presence of contaminants in their soil and a valuation report is usually expected to accompany compensation claims against a polluter. Post Impact Environmental Assessment (PIEA) surveys following an oil spill incident should assess the damage to the bio-geophysical environment - Environmental Impact Assessment (EIA); the disruption to socioeconomic activities - Social Impact Assessment (SIA), and the damage to Real and personal property. A new compensation regime should as a minimum ensure that claims are assessed, made and paid for under these three important categories.

Valuation of the worth of agricultural or other landed property assets should be similar if the same principles, Bases and methods are applied. Where the purpose for which a particular valuation is required differs, then whatever adjustments that have been made should be clear and traceable within the final estimate of value. For instance, the difference between valuation for compensation and valuation for sale is the fact that one owner is assumed to be 'willing to sell' while the other is 'under compulsion to sell'. Whatever adjustments there are to either valuation it should as much as possible be in favour of the party who is under compulsion to give up his property due to the spill. This is clearly not the case in Nigeria. In situations where damage is involved, another variable is added to the picture and besides the initial valuation of the worth of an asset be it agricultural or other forms, the addition should be reflected in other considerations such as disturbance or injurious affection without manipulating value estimates to achieve this. The heads-of-claim are important in each instance and should be clear.

The current practice indicates that EIA's and SIA's are two parallel and independent studies leading in some cases to the production of two independent reports that do not establish the connection between the impact on the environment and subsequent impact on the property and livelihoods of those who depend on it. In several instances, there is no laid down procedural set of steps from the establishment of a spill to the assessment for clean-up, remediation and compensation. This divided and usually non-existent approach deprives the process of the advantages of a more scientific and technical approach where field data is fed back into the compensation assessment process at an earlier stage and which informs further investigation before final reporting (Kakulu, 2014). The value of ecosystems particularly the rich mangroves of the Niger Delta region cannot be underestimated. Economic valuation of environmental losses should focus on actual losses from the mangrove which is a large industry responsible for providing self-employment opportunities to thousands of riverine community dwellers.

Periwinkle and shell fish harvesting and other mangrove resources are the mainstay of most riverine communities, also are environmental goods lost from passive and non-market use losses. It is usually difficult to ascertain market price for such losses however, the value-in-use approach makes it possible to identify artisanal fishermen, periwinkle pickers and shellfish harvesters whose livelihoods have been impacted. In the absence of market price data, cost or income based valuation methods may not be suitable rather a qualitative and survey based methods can be used as supplementary tools to determine the contingent valuation, conjoint analysis and perceived diminution in value using other parameters. Valuation of contaminated farmlands and mangrove resources requires extensive data inputs of both scientific and qualitative nature which EIA and SIA reports can provide following further discipline specific synthesis of the findings within a framework of contaminated land valuation. This will enable the assessment team ascertain the short-term, medium and long-term consequences of oil pollution to crop production, ecosystem services and personal property in the form of landed property, buildings and trade tools.

The analysis reveals a number of issues which cannot be ignored if a new compensation rates mechanism is to be introduced. References to value must be addressed and the specific bases or type of value being referred to should be specified in any enabling laws. In order to formulate an appropriate method of valuation for damage it is important to establish the relationship between the source of pollution, spatial distribution and pathway; receptor communities or ecosystems; and concentration of the contaminant or pollutant, the environmental impact including stigma associated with it. More importantly, the parameters for ensuring that the process is clear will include unambiguous details under the following categories:

TYPE OF COMPENSATION

It is important to establish what qualifies compensation within the context of oil spill damage assessment for compensation. The fundamental principles of compensation which include adequacy, fairness, completeness, equivalence, equitable are important. The need to achieve promptness in payment should be clearly stated.

BASIS OF VALUE

In Britain, the basis of compensation where no land is taken is the reduction in value of the land as a result of seven specific physical factors which are noise, vibration, smell, fumes, smoke, artificial light and discharge unto the land of any solid or liquid substance. Anything outside this is not to be compensated for. The basis of valuation in any legislation on compensation must be decided upon at the point of formulation. The final value estimate is the product of a number of considerations and combination of methods that are linked to objectives the valuation. One of the difficulties in the use of the rates method in Nigeria is the indecision of statute on a specific interpretation of value and the application of valuation methods which are consistent with the pre-determined value type.

There are several considerations which inform the bases of value and are discussed.

1. The value-in-use or the use-value is most applicable in all circumstances involving farmland judging from how communal farmland is used particularly in Nigeria. Contrary to the assertions of the Land Use Act, there is no land without value. The use-value captures what the land can produce over time or what it can be used for. This reflects the income that can be generated under its use which could include lumbering activities as well. It is usually measured in terms of the productivity of an economic good to its owner or user and since land is part of everyday life to those who live on it, when lying fallow or as pasture it is an investment for future farming seasons particularly in a crop rotation system. An average farmer farming on a single mixed crop farm would expect to generate a certain net income having allowed for outgoings and expenses on labour fertilizer and other things.
2. The Market Value looks at what the investment can be sold for in the market, where the usual forces of demand and supply dictate the final value based on an analysis of recent sales trends such as hard wood or trees.
3. The Commercial Value may be prescribed where economic trees and crops of a commercial nature are involved.
4. The Investment Value of property may be viewed as the price at which an investor would pay for property in the light of his perceived capacity of such an investment to yield positive returns in the future.

In deciding on a new compensation rates mechanism, we assumed different types of value for damage to different forms of property and agricultural investments.

METHODS OF ASSESSMENT

There are basically three approaches to valuation which are the Cost Approach, the Income Capitalisation approach or the Comparative sales approach. In whatever circumstance, the specified bases-of-value will inform the most appropriate method to use as valuation for compensation.

THE COMPARABLE SALES APPROACH

The current use of rates is based on the comparable approach but fails in the sense that it is not developed from current market realities but predetermined historical rates. A new mechanism should insist on establishing rates as at when the damage occurs from comparable un-impacted sites and thereafter, apply such rates as a basis for replication where necessary. The truth is that mass appraisal techniques such as the use of rates cannot be discontinued in its entirety but modified to conform to best-practice principles. The comparable properties used should be based on recent valuation, as at the time of damage of similar property values in similar locations.

THE INCOME CAPITALIZATION METHOD

This is a good method to use for farmland. Farmland produces an income to the farmers in occupation of land, as long as the land remains clean and is not the subject of contamination. The derivable income remains guaranteed subject of course to natural disasters or act-of-God which is beyond the control of the farmer. The Value-in-use can be determined by a combination of the capital valuation of the income (from sales or food consumption) for a period to be determined by the severity of the impact and anywhere from 5 to 30 years or more. Where impacted land has no crops on it at the time of impact, the law provides nothing but the DPR Report provides for an annual payment for a fixed duration. It separates compensation for Agricultural land from the compensation for crops or economic trees on it. Payment for the land is for a period of 5 years possibly in consideration that the process of restoration and natural attenuation will take place during this time. The investment method of valuation is suitable where landed property is involved and will capture the future expectations of income growth to the investor. The Profits method which is a derivative of the income capitalization approach can be applied where buildings are being used for business such and have established goodwill by virtue of location and clientele, compensation valuation should capture the value of the business lost and not just the replacement cost of the structure which may be insignificant compared to the actual loss sustained by the owner.

THE COST-TO-CORRECT APPROACH/REPLACEMENT COST

This is an important component in valuation for damage. It captures the cost of remediating the damaged area and restoring it to an acceptable standard. This forms the basis of compensation including all such other losses as might be sustained. The replacement cost may be sourced for.

HEADS-OF-CLAIM

The heads-of-claim should be clear and unambiguous. They should be clearly spelt out and should as a minimum include the following items:

LAND

There is no land without value and where land has been polluted, it should be compensated for, taking into account the type of contaminant, its immediate and future impact on the land or groundwater resources. In deciding on the value of compensation for land, its existing use-value or impaired potential use-value should be assessed as much as possible. For land with development potential, the prevailing market value from recent sales of comparable properties is a realistic approach while with fallow farmland the loss of farming rights may be assessed on an annual basis and discounted using a term of years as may be required for full recovery of the land for agricultural use.

BUILDINGS

Buildings should be valued using the most appropriate valuation method in the each circumstance and according to the particular use to which the building was put at the time of destruction. A cheaply constructed building may be located in a busy commercial neighbourhood and could attract high patronage and make huge profits on turnover. The loss of income of capitalized might be significantly higher than the replacement cost of the building itself if pollution impedes business activity. The value of loss is not the building but profits and goodwill including the building. The replacement cost method fails to capture the value-in-use of a building while the depreciated replacement cost method assumes that a depreciated house can be built and it excludes the value of comparable alternative land. This defeats the principle of equivalence and might impede full replacement of loss to a claimant. Buildings of a commercial nature should be valued as a going-concern and where the profits based method is considered the best approach, it should be used.

CROPS

The value of crops should incorporate all the costs associated with farm rentals, de-bushing, burning, clearing, tilling and weeding the farm during the farming season in which the pollution occurred. Secondly, It should also include the projected estimates of the forfeited harvest expected at the end of the farming season, grade of maturity notwithstanding because in the absence of pollution, the crops would have grown to maturity. Thirdly, the cost of securing an alternative farm plot and the disturbance associated with this change of location and proximity to markets should also be provided for. Fourthly, the loss of farming rights for the period between when the pollution occurred through remediation, monitoring and reasonable recovery of the land for farming purposes (anywhere between 5- 30 years or more, depending on the intensity of spill) should be compensated for on an annual on a reducing balance based on the monitoring results.

ECONOMIC TREES

The economic or commercial value of a tree should be the basis of valuation. The commercial value of a tree such as hardwood or softwood can and should be assessed with respect to the timber market and other timber resources. Fruit bearing trees should be assessed based on the life span, bearing capacity and yield for mature trees. For immature trees, the valuation should incorporate losses to the fruit bearing potential of the tree and make adjustments where necessary to reflect the stage of maturity at the time the damage occurred.

SURFACE RIGHTS

The valuation of the loss of surface rights should be linked to the period for which the polluted land will remain inaccessible to the community during the clean-up/remediation; monitoring phases and up to recovery. The period will however need to be determined prior to commencement such that a discounted value may be assessed and paid.

DISTURBANCE

The valuation of disturbance may be necessary in all categories of loss of real property, economic crops or trees or rights to land and aquatic resources. The cost of relocation of farmlands and property can include the loss of goodwill for business premises and this should be valued for compensation. Migration can lead to a decline in socio-economic livelihood.

INJURIOUS AFFECTION

Injurious affection may be assessed for adjacent properties which might not be within the immediate spill location but along the pathway or receptor communities or properties that have become or will become stigmatized on account of the spill having occurred. The valuation will involve an estimate of loss in business operations and other such activity decline occasioned by the spill. Land which is stigmatized as a result of oil spills to adjacent lands may suffer decline in value which can be estimated. It might be necessary to make provision for losses under injurious affection.

LOSS IN ECOSYSTEM SERVICES AND OTHER RESOURCES (COMMUNITY AND GOVERNMENT)

Loss in ecosystem services are important to not just the spill source, pathway or receptor communities but to the general public and compensation should be paid to enable government make amelioration where required. Such compensation should however not be paid to individual claimants.

LOSS IN FOREST RESOURCES (SNAIL HARVESTING AND MEDICINAL PLANTS)

Hunters, gatherers, pickers, and other terrestrial or aquatic resources users risk losing their means of livelihood when forest resources or mangrove forests are affected by pollution. Compensation should accommodate this category of people as much as possible and the assessment should be made in terms of resettling them into other trades and means of livelihood.

SHRINES AND OTHER SACRED PLACES

Shines and sacred places may be valued on the basis of sentimental attachment of individuals and communities and the basis of compensation should be by negotiation with the claimants.

SOCIO-ECONOMIC LOSSES

Artisanal fishing and shell fishing activities are a predominant occupation in oil producing communities in the Niger Delta Region. Although illegal bunkering and artisanal refining of crude oil had seriously impacted on this industry, the losses from this sector have to be fully reflected in any assessment for compensation. The categories of claimants who suffer losses from this sector are usually very many and may not be resident at the spill source community but might be communities located along the pathway of the spill or those in receptor communities. Fishermen may be forced to move further away from their fishing locations while women and youth actively engaged in shellfish harvesting in nearby creeks may to lose this source of income completely. Fishmongers who depend on steady supply of fish and shell fish will also suffer loss where their suppliers are unable to feed the market demands due to pollution. It is important that a new compensation regime captures the effect of a single spill on the industry and not on individuals alone. The artisanal fishing industry includes the transporters who provide the connection between the fishermen and the consumers of their products and in the event of pollution, they form part of the category of individuals who would lose self-employment and will need to be compensated.

CONCLUSION/RECOMMENDATIONS

In conclusion, the study has simply exposed some of the challenges associated with the existing compensation regime. It has identified the rather unscientific and unprofessional assessment methods in certain areas. Although a full blown study will yield more detailed results, this paints a picture and the need for a compensation code in Nigeria is extremely urgent.

Damage assessment for compensation requires a multidisciplinary approach in order to arrive at a fair, equitable, equivalent, just and adequate compensation value. Professionals from various fields of expertise will need to work with specialist Valuers to develop more robust assessment method theory, research and development. Although the use of rates can be applied to situations where mass appraisal is the recommended approach, such rates should first of all be derived from valuation and not mere guesstimates as the current rates indicate.

A new and fair compensation rates mechanism cannot be based on historic rates as this is not in consonance with valuation principles. Valuation is not retrospective and should as a minimum determine the actual loss sustained as at the date of the incident where possible. A separate and distinct regulatory framework in the form of an 'Oil Spill Compensation Valuation Code' is required whose underlying principles and tenets must be rooted firmly 'damage assessment' and not in 'compulsory purchase' as the Land Use Act provides for. Where such damaged land has investment potentials, the investment value of such land should be considered as the basis of valuation.

A compensation code will be expected to cover all activities from the initial spill through its assessment for clean-up, compensation and remediation. The new code should address the following issues in a clear and concise manner:

1. Once a spill has occurred, establish the source and cause of spill, nature of pollutant and assign liability.
2. Establish the magnitude/scale of the spill in terms of its spatial distribution and volume.
3. The spatial distribution should include the physical area which covers the source, pathway and receptors and depth.
4. Initiate an immediate post impact environmental assessment (PIEA) study which will lead To clean-up, compensation and remediation.
5. Initiate a post impact socio-economic survey (PISS) that will lead to compensation of other artisanal industries that will be affected by the spill ultimately.
6. Ensure that the valuation professional is engaged on all matters of valuation of landed property as specified in the Estate Surveyors and Valuers Registration Act.
7. Ensure transparent identification of genuine claimants and prompt payment of adequate compensation is achieved.
8. Ensure that both parties have access to courts of law to seek redress or other compensation tribunal as provided for in the Nigerian Constitution and other enactments.

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